

LIBRARY
UNIVERSITY OF NORTH DAKOTA
ELLENDALE BRANCH
ELLENDALE, NORTH DAKOTA

THE NORTH DAKOTA FARMER



Alex Alin

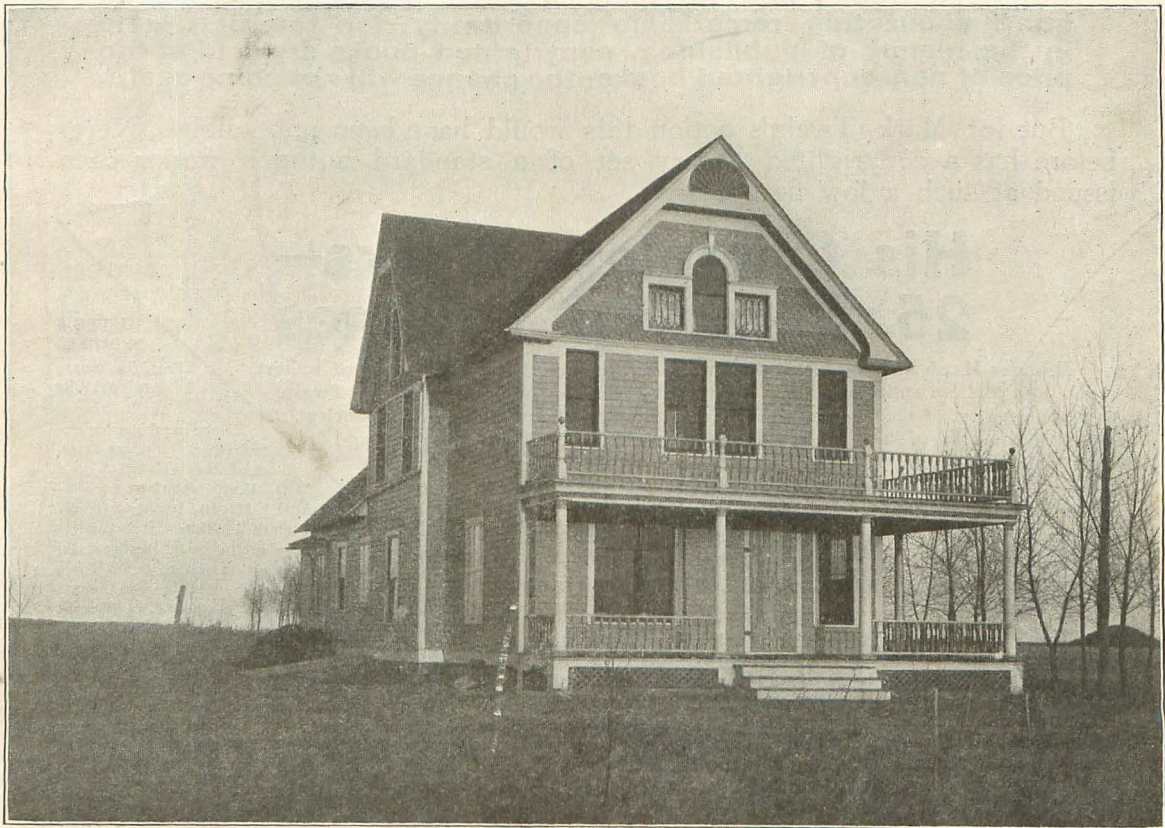
Jan
11

"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 13 · No. 1

Lisbon, North Dakota, July 15, 1911

50 Cents A Year



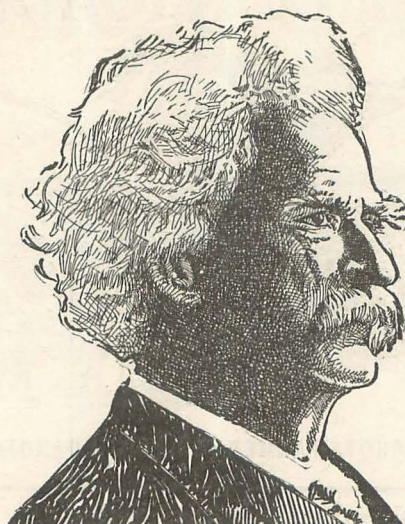
A Barnes County Farm Home

978.4
N814
Graham

MARK

1/2

Price



TWAIN

A New Edition

Now for the first time you get a complete set of all Mark Twain's writings at just exactly one-half the price they have ever been sold before. This is a new edition, just as complete as the old one, which still sells, by the way, at \$50.00. This new edition is only \$25.00—for the 25 volumes.

It had been Mark Twain's ambition to have his books in every American home, and he made a great personal sacrifice to bring about this remarkable opportunity—for the first time in the history of publishing, copyrighted books are sold at the price of non-copyrighted books—the chance will not come again.

But for Mark Twain's action this would have been impossible. Never before has a copyrighted library set of a standard author's works been issued at such a low figure.

His Complete Works— 25 Beautiful Volumes

Brander Matthews says: "Mark Twain will be included in that group of writers headed by Molière and Cervantes. With the exception of Count Tolstoi, Twain was the greatest of recent modern writers, and will be handed down to posterity through the trio of his works 'Huckleberry Finn,' 'Tom Sawyer,' and 'Pudd'nhead Wilson.' Twain is a greater stylist than Stevenson or Thoreau, and his 'Man that Corrupted Hadleyburg' is one of the finest works in English literature." Mark Twain himself wrote a preface to this edition. Brander Matthews has written the biographical criticism of Mark Twain and his work. There are portraits of the author at periods when the different books were in process of writing.

There are beautiful pictures by such artists as Frost, Newell, Smedley, Thulstrup, Clinedinst, Kemble, and Oppen. The binding is in rich red rep silk book cloth, with title labels stamped in gold. The books are printed on white antique wove paper, especially made for this edition. Each volume is of generous size and bulk, 5x7½ inches.

HARPER &
BROTHERS
Franklin Square
New York City

Please send me for examination, carriage free, a set of MARK TWAIN'S WORKS, Author's National Edition, twenty-five volumes, cloth binding. It is understood I may retain the set for five days, and at the expiration of that time, if I do not care for the books, I will return them at your expense. If I keep the books, I will remit \$2.00 a month until the full price, \$25.00, has been paid, or, within thirty days, \$23.75 as payment in full.

Signature.....

HARPER & BROTHERS

Send books to.....

A Catalogue of Our Standard Sets of Books will be sent upon request

THE NORTH DAKOTA FARMER

Vol. 13, No. 1

LISBON N. D., JULY 15, 1911

50 Cents a Year

Dry Farming

By Pres. J. H. Worst

So long as Nature furnished sufficient moisture at the exact time the plants required it and in sufficient quantity to supply the growing crop the subject of dry farming attracted but little attention. The general drought that prevailed last year and the partial drought this year, however, has given the subject of dry farming a new significance. In localities where sub-soil moisture was almost wholly lacking on account of last summer's drought, it must be patent to any thoughtful farmer that, in those localities, spring and summer showers and the moisture resulting from the winter snow would have to be depended upon for the production of this year's crop. There was no foundation in the way of sub-soil saturation to supplement the showers and sustain growing plants during the somewhat protracted intervals that occurred between showers.

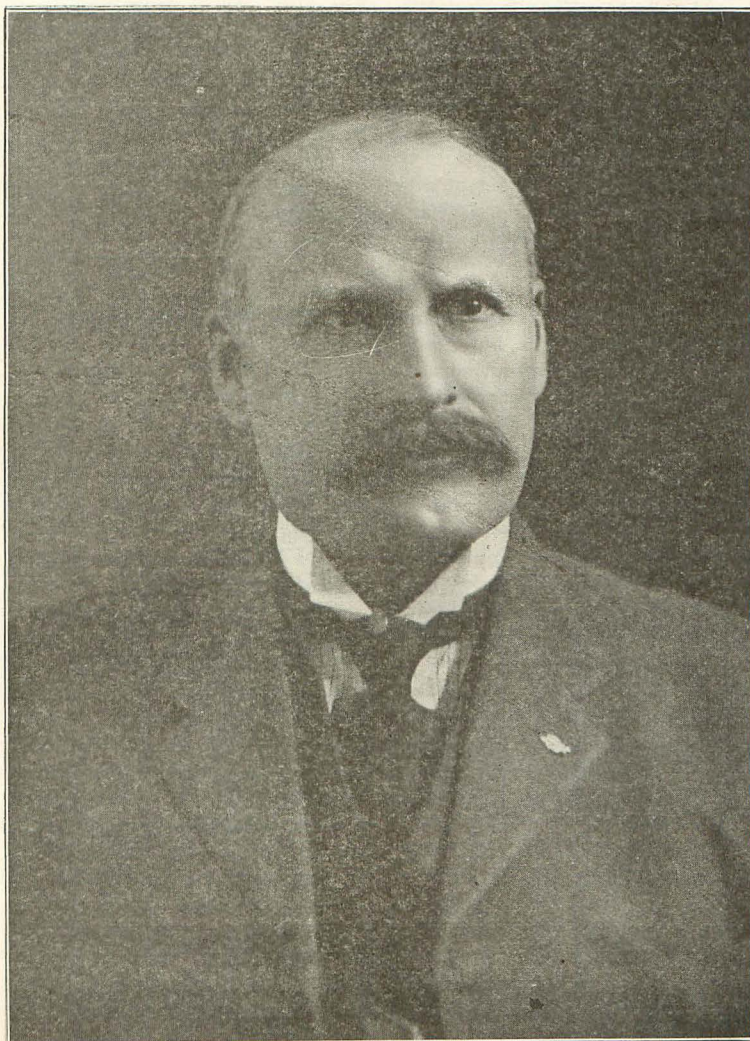
Furthermore, light showers of half an inch or less have a tendency to produce a shallow rooting system rather than a deep rooting system, which causes the crop to quickly suffer when the weather gets hot and the surface becomes dry. This condition doubtless will continue until a wet season occurs with precipitation sufficient to reach the sub-soil with abundant moisture, and to a considerable depth.

This accounts for the saying that we have alternating cycles of fruitful and precarious seasons. Once the sub-soil is thoroly saturated with moisture, no wide-awake farmer should ever allow it to become dry again. He will conserve the sub-soil moisture by methods of cultivation recognized as necessary to insure moisture conservation.

In localities where the average precipitation exceeds 16 inches and in view of the known fact that less than 7 inches of water is required by the plants to produce a profitable crop, it is sheer folly to allow weeds and crusted soil to waste

more than 9 inches of solid water. Moreover, it has been determined that where half a pound of dry matter in the form of weeds can be found on each square yard of ground, the water neces-

sary to produce these weeds is sufficient to produce a twenty-bushel crop of wheat. The folly of growing weeds must, in view of these facts, be quite apparent. If fields are clear of weeds and have been plowed deep enough to accommodate a heavy shower of rain without any run-off, and have been sub-surface packed as the ground is being plowed, (in order to insure capillary connection of the furrow slice with the sub-soil,) and then if from the time the ground is plowed and sub-surface packed in the fall a dust blanket be



Dr. J. H. Worst, President International Dry Farming Congress

maintained until the grain is too large to be dragged in the spring, there can scarcely be a possibility of crops being injured from lack of moisture about their roots.

To insure sufficient moisture to plow the ground with ease and to the proper depth, the disc should follow the binder. This will fill up the cracks and also pulverize the surface so that, should it rain, the ground is in proper condition to receive it, and when plowed, the pulverized surface will materially aid in producing a proper seed bed.

I have estimated that with modern machinery, it will not cost to exceed \$1.00 per acre to give the land all the additional cultivation here recommended, viz.,—discing after the binder, with at least four draggings later, to maintain the soil mulch.

Under any circumstances, the farmer must invest in land, must plow the ground, certainly in some old way, must drag it at least twice, furnish seed and drill it in. This will cost between \$5 and \$6 per acre. This investment of labor and money must be made under any circumstances. I feel confident that by adding additional expense to the extent of \$1.00 per acre by way of four draggings and one discing, as here indicated, he will be fairly sure of twice the profit he would otherwise receive. Without this additional cultivation he will, under present conditions, stand a good chance to receive no profit at all; for, as before stated, until the sub-surface is again filled with moisture, summer showers will have to be depended upon.

The only difficult part of this program is the discing after the binder; but this is really important for the reason that as a result of this discing, whatever moisture may be in the soil will gather just below the disturbed surface, so that when plowing time comes, the ground will be in better condition for plowing, so far as relates to moisture. In ordinary seasons, it will be easier to plow seven inches deep when the ground has been thus disced than to plow four inches deep when the ground is bone dry, as it is apt to be if this discing is neglected.

I earnestly wish that quite a number of farmers would follow out these directions faithfully, if only on five acres of ground, and thus determine for themselves the advantage of giving the land this extra cultivation. Don't be satisfied with one season's results but make it a point to give this particular tract—whether it be five, ten, twenty, or forty acres—the same treatment for five years. We learn by experimentation.

The land in different sections of the state requires different treatment, and as I am convinced that cultivation with a view to conservation of moisture is one of the greatest problems we have yet to

solve, I trust that at least one farmer in each community will give this matter his earnest attention for at least a five-year period and report to this station annually the results he obtains.

Objection is sometimes urged against these frequent draggings on account of the tendency of some soils to blow when frequently cultivated. A top dressing of coarse manure, using a manure spreader for distributing it, has a tendency to cure the evil. However, manure cannot be thus applied except on small areas. If, however, the land is dragged when the ground is fairly wet, it will have less tendency to blow as the surface will be inclined to puddle into small lumps which will harden and resist the tendency to drift.

Under any circumstances, the farmer must use his judgment and be governed largely according to local conditions. A general rule will not apply to every locality as conditions of soil vary greatly. As a general rule, where soil drifts, there is something lacking in the system of farm management. Wheat, grown continuously will put the ground in condition to drift readily but no good farmer will grow wheat continuously on the same ground. At least once every five years, the land should be seeded down to grass, alfalfa, or clover. This will form a sod and the fine roots will act as a binder, holding the soil particles together. If properly managed, but few small areas in the state will suffer from drifting.

DRY FARMING BOOK

By W. C. Palmer

The latest book on Dry Farming is from the pen and brain of John A. Widsøe, director of the Utah experiment station, with the title "Dry Farming."

What is Dry Farming?

He defines it as follows:

"Dry farming as at present understood is the profitable production of useful crops without irrigation on land that receives annually a rainfall of twenty inches or less. In districts of torrential rains, high winds or other water dissipating factors the term "dry farming" is also popularly applied to farming without irrigation under an annual rainfall of twenty-five or even thirty inches." That includes all of North Dakota as well as the states to the south and west so that everyone tilling land in this state is vitally interested in learning what the dry farming methods are so that it can be put into practice.

Success With Dry Farming Methods

Dr. Widsøe makes this claim:

"When the methods of dry farming are understood and practiced, the practice is always successful, but it requires more intelligence and more implicit obedience to nature's laws and greater vigilance than farming in countries that have abundant rainfall." This is certainly encouraging information, and it would seem that there would be a grandstand rush for information that promises so much. If any such sweeping statements were made by a reliable authority of some method in curing diseases, the printing press could not run fast enough to supply the demand until practically every farmer had a copy of the book.

Dr. Widsøe sums up as follows:

"The fundamental problems of dry farming are then—the storage in the soil of the annual rainfall; the retention in the soil of the moisture until it is needed by the plants; the prevention of the direct evaporation of soil moisture during the growing season; the regulation of the amount of water drawn from the soil by the plants; the choice of crops suitable for growth under arid conditions; the application of suitable crop treatments, and the disposal of dry farming products based upon the superior composition of plants grown with small amounts of water. Around these fundamentals cluster a host of minor, tho also important, problems."

It is these fundamental and minor problems that Dr. Widsøe treats of principally in his book—and that is just the information every farmer should have. An experience like last year should, according to the statements above, be unnecessary. Some will be skeptical, but the same was true of the locomotive and the steamboat. Some said they would not move; but they went just the same and are going yet.

No Mystery in Dry Farming

There is no mystery in dry farming, tho it is a little hard at first to comprehend some of its methods because we cannot see what goes on in the soil, and then it is bringing new forces under control that we have not been accustomed to manage. We are accustomed to storing water in a cistern—so that is easily understood. When we have some experience in storing water in the soil for the plants—that will become as plain.

N. D. CLIMATE HAS NOT CHANGED

Chief of United States Weather Bureau at Fargo Discusses This Subject

The popular idea that the climate of

this part of the country has changed within the last twenty-five or thirty-five years was shattered when Chief Moore, of the U. S. weather bureau at Fargo, to a Farmer representative stated that the coming of civilization had absolutely nothing to do with the climate, and that it did not affect it in any way.

"I would advise the people of this section of the country not to invest a dollar in land with the idea that climatic conditions had changed," said Mr. Moore. "All this talk about the coming of civilization with railroads, telegraphs and fences which effect the electrical currents of the air is nothing but foolishness," continued Mr. Moore.

"The rainfall of a section of the country is not controlled by anything that man can do. The fact that men come into a new region and succeed in raising a crop is due to the fact that the hard upper crust of the soil is broken up and the same amount of moisture that usually falls does more good than before the land was cultivated."

Mr. Moore spoke at the Devils Lake Chautauqua Sunday and in speaking of his visit in that city he said: "I was out on the lake for several hours yesterday and as you know the shore line has receded about six miles from its original bed. When asked the reason of this I pointed to a long line of elevators and replied that there was their shore line. It took some time before the party understood what I meant. The fact that the prairie has been broken up in that vicinity has caused the moisture that fell to sink into the ground and produce crops instead of running off the surface and making a lake. Consequently the shore line has receded."

A CORRECTION

By J. H. Worst, Pres. A. C.

I am quoted as saying in my address before the Retail Grocers' convention last Thursday, at Minot, that a crop can be grown with seven inches of water. I referred to seven inches actually used by the growing crop, making no allowance, however, for evaporation or what is stolen by weeds.

One inch of water represents 112 tons per acre, seven inches represents 784 tons or 1,568,000 pounds. As it requires approximately 500 pounds of water to produce one pound of dry matter, it is evident that 1,568,000 pounds of water will produce over 3,000 pounds of straw and wheat per acre. Whether more or less of the

weight should be represented by the straw is immaterial; my contention is proved.

As we get an average of more than sixteen inches of precipitation annually in the western half of the state, it shows conclusively that we can allow liberally for waste—fully ten inches, or 1,120 tons of rainwater—and still retain enough to insure a crop of twenty-five bushels of wheat per acre.

The dry farming propaganda is intended to determine and teach how to conserve the necessary amount of moisture and have it available for the growing crop, when needed. Too much water at one time and too little at another, and especially at the critical period, injures a crop, regardless of the amount that falls during the year.

Moisture conservation is the paramount agricultural problem, not only for North Dakota, but for much if not most of the humid territory east of the Mississippi river. Where they enjoy (?) an annual precipitation of thirty-five or forty inches, droughts frequently occur. Any protracted period during which there is insufficient moisture for the crop may be considered a drought, regardless of the annual rainfall of the country.

But the question most pertinent right now is, what shall we do with the thousands of acres that are drought-stricken beyond the hope of a crop this season?

My advice would be to thoroly disk the land and do it right away. If there is enough grain to pay for the cutting for hay I would disc the land immediately after the crop is removed. This will destroy all weeds and other growths, fill up the cracks and conserve whatever moisture that remains in the ground. Further, it will put the ground in proper condition to receive moisture should it rain—and retain it. Under any circumstances, it will put the surface in good shape for making a seed bed when the ground is plowed. If a farmer is afraid to risk too much, he should be willing to try this plan on at least ten acres. He should do the discing thoroly and note the difference at plowing time and again next summer.

Under no circumstances should ground be plowed under when it is bone dry, if an ideal seed bed is desired. Better plow in the spring when there is moisture enough to plow the land properly. Then again the ground should be plowed at least seven inches deep where the rainfall is naturally just enough, at least where there is not much to spare. This will provide a reservoir sufficient to hold the precipitation represented by a heavy shower and make conservation possible. The "run off" is lost beyond possible re-

covery and should not be permitted.

I am of the opinion that considerable winter rye should be sown during August and a larger acreage of corn planted next spring. More cultivation means fewer weeds and the disastrous results this year of trying to divide a limited amount of moisture between a crop of grain and a crop of weeds is too apparent to bear repetition. Winter rye helps to destroy weeds. A larger corn acreage means more dairying—and less financial stress.

Corn will always make silage and plenty of it can be substituted for winter feed and another for summer feed will enable even a small farmer to keep a dozen milch cows and farm a considerable area of small grain besides.

OFFICIAL CALL

The Honorable, The Chief Executives of All Nations; The Ministers or Secretaries of Agriculture; the Governors of States or Provinces; The Diplomatic Representatives of Nations; The Presidents of Agricultural Colleges; The Federal or State Directors of Agriculture; State Land Boards; State Boards of Agriculture; National, State or Local Agricultural Societies, Granges or other similar Bodies; Seed Breeding Associations; Live Stock Associations; Horticultural Societies; National, State or Local Educational Societies interested in Agriculture; County Commissioners; Mayors of Cities or Presidents of Towns; Commercial Bodies or Grain Exchanges; Transportation Lines, and Members of The Dry Farming Congress—GREETING:

You are invited to participate, personally or by properly accredited delegates, in the Sixth International Dry-Farming Congress and International Exposition of Dry-Farmed Products to be held in Colorado Springs, Colorado, U. S. A., October 16, 17, 18, 19 and 20, 1911.

Better Agriculture

Is the hope of the world and the necessity for every individual farmer.

Every Country in the World

Has a certain percentage of agricultural acreage for which there is either limited rainfall or limited moisture in other forms.

To Solve these Problems

Is the work of this great co-operative Congress, and you are urged to consider this convention of the utmost commercial and social importance to your country, commonwealth and associates.

The Program

Will be devoted to discussing plans for rapid enlargement of the necessary agricultural educational propaganda; co-operative work between nation, state

and farmer in developing a higher type of methods and production; exchanging reports between nations, states and farmers, as to methods of overcoming problems in the conservation of moisture, soil fertility and of breeding more drouth resisting plants and fruits; studying the rebuilding of soils and overcoming of diseases of plant life, trees and soils; enlargement of experimental methods; national and state legislation affecting the farmer from the standpoint of development and methods; immigration; the interests of the homesteader, etc.

reports made to the Congress by special committees appointed by the President of the Congress to carry on investigations, and to formulate future plans and advice for the benefit of members of this Congress.

Institute Sessions will be arranged for in charge of various states each day.

The International Dry-Farming Congress,

Dr. J. H. Worst, President,

C. R. Root, Executive Chairman,

The Board of Control,

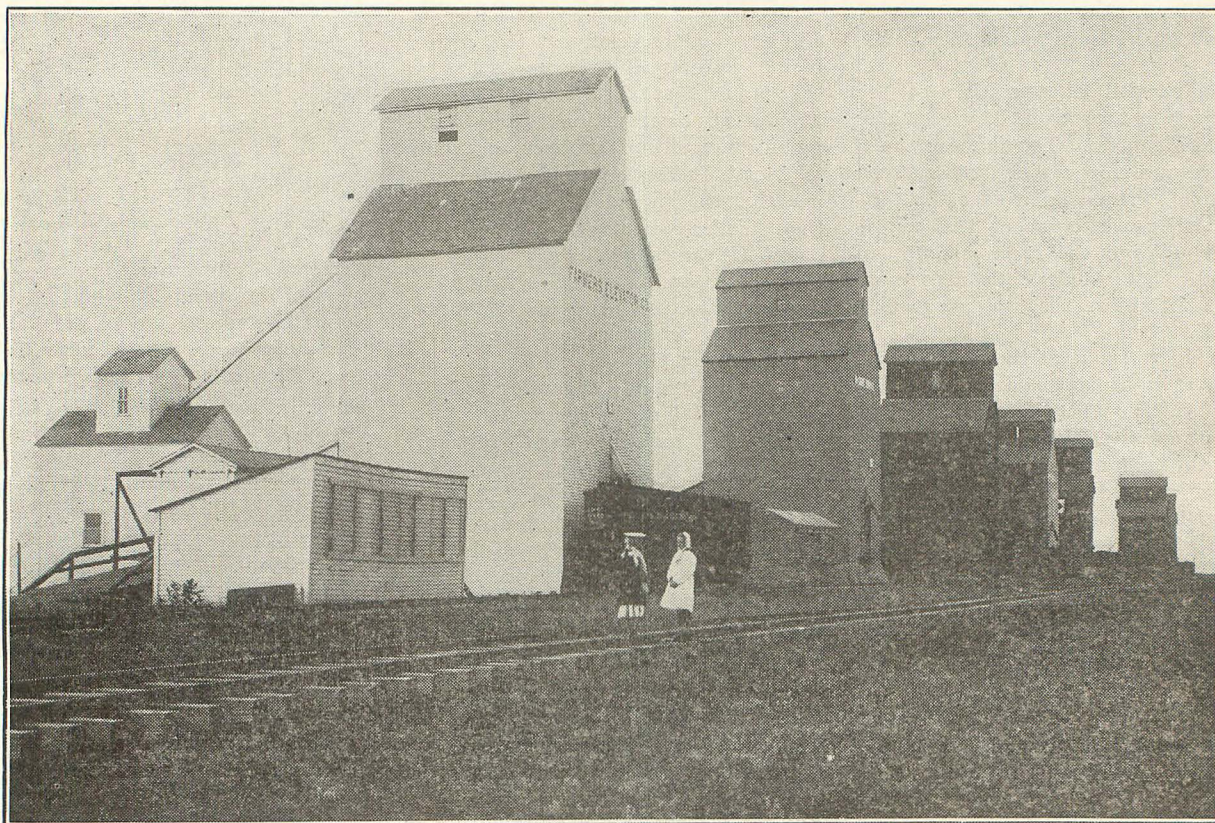
John Lennox, Chairman.

John T. Burns, Secretary-Treasurer

Corn fodder furnishes more digestible roughage per acre than any other forage crop grown in America. Shredded baled corn fodder sells for the same price on the Chicago market as meadow hay. It is a good roughage for horses, wholesome and usually free from dust.

Ensilage from corn is a standard feed for dairy cattle and is good for beef cattle and sheep. It supplies a good substitute for fresh pasture grass in winter. A succulent feed of this sort is a great help in keeping up the milk flow in winter.

Corn is the best fattening grain known



"Freighters" at Mohall Awaiting the 1911 "Cargo"

The Congress

Will open promptly at 2 o'clock Monday afternoon and will remain in session until Friday noon, the program being so arranged that delegates may have ample opportunity to visit the Exposition and other attractions.

At least one evening will be devoted to amusement and two evenings to joint sessions of the Dry-Farming Congress and the Congress of Farm Women.

The International Section will be addressed by scientists from many nations.

The live issues of the day in the agricultural world will be discussed by leading thinkers and experimentalists, and no feature of practical farming will be omitted in the arrangement of the sessions

Technical matters will be treated in

CORN CULTURE

By J. H. Shepperd in N. W. Farmstead

Why Grow Corn

It is a good cleaning crop where weeds trouble.

It is a good moisture conservation crop. It keeps a surface mulch of loose dirt over the ground all season which prevents evaporation. In the dry season of 1900 wheat after a corn crop produced 25.4 bushels per acre and after small grain 4.7 bushels per acre. This was the result of retaining the moisture. In 1910 results of the same sort were secured but they were less marked than in 1900.

It makes a splendid preparatory crop for flax and wheat or other small grain crops

and is relished by all classes of livestock. How Often Shall Corn be Grown in a Cropping System in North Dakota

This question must be answered for the different regions by different statements. North Dakota has many different soils and climatic conditions.

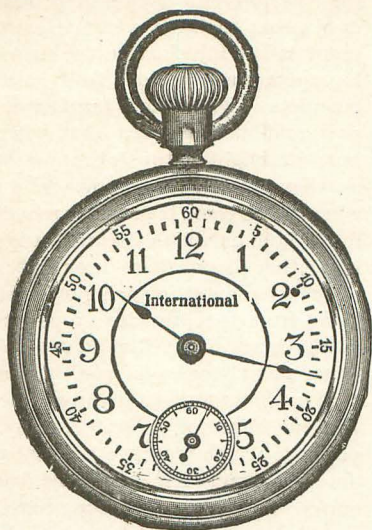
Corn	Corn	Corn
Flax	Wheat	Wheat
Wheat	Barley	Peas and Oats
Clover	Peas and Oats	

The above are some good combinations of cropping which include corn.

What Kind of Corn Shall We Plant

For the Northern portion of North Dakota: Mercer or Triumph flint varieties are well adapted, being high growing and good yielders. They have the advantage also of being early kings.

For the Southern portion of the state:

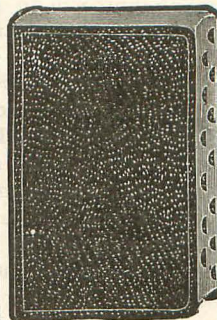


This stem wind Watch for Boys is given for three Subscriptions at 50 cents each.

Premium Offers JUST A LITTLE WORK

All Premiums are sent absolutely free, express or post paid.

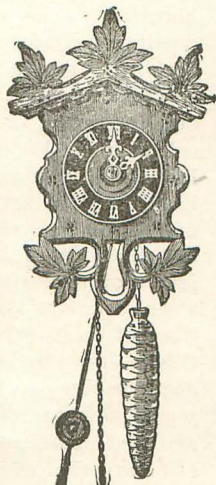
Old or New Subscriptions to the
North Dakota Farmer
Lisbon, N. D.



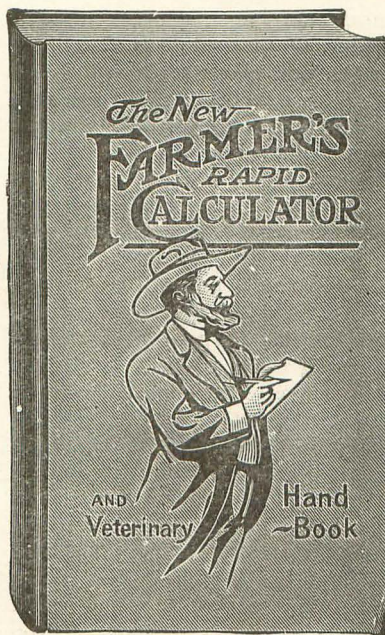
Size 6x9
Webster's School Dictionary for three subscriptions at 50 cents each.



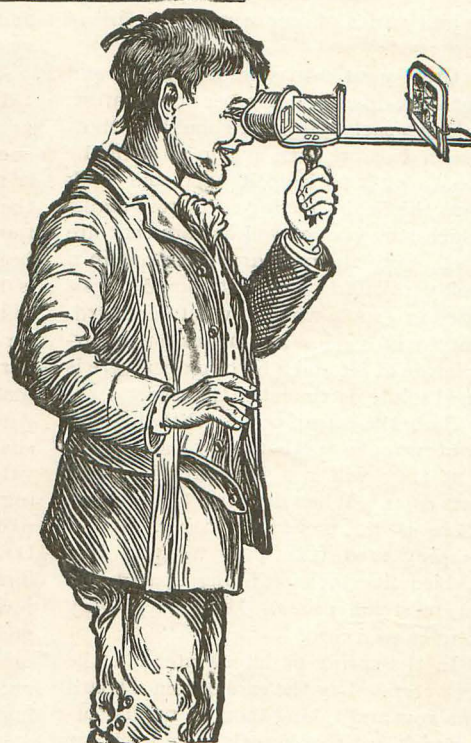
14K Gold Fountain Pen given for two Subscriptions at 50 cents each.



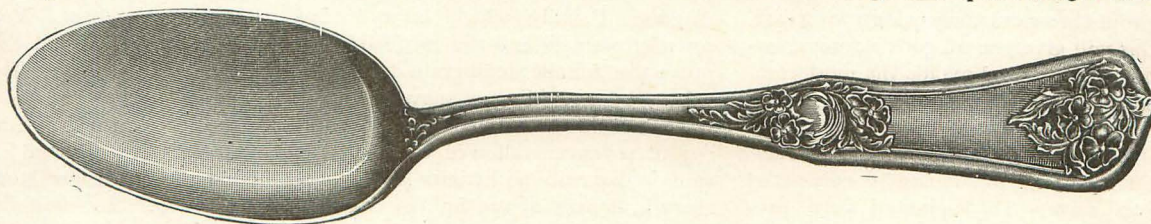
A Cuckoo Clock for only three Subscriptions at 50 cents each.



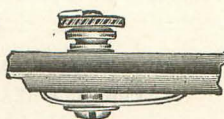
Rapid Calculator and Veterinary Hand Book for the Farmer. Given for one Subscription at 50 cents.



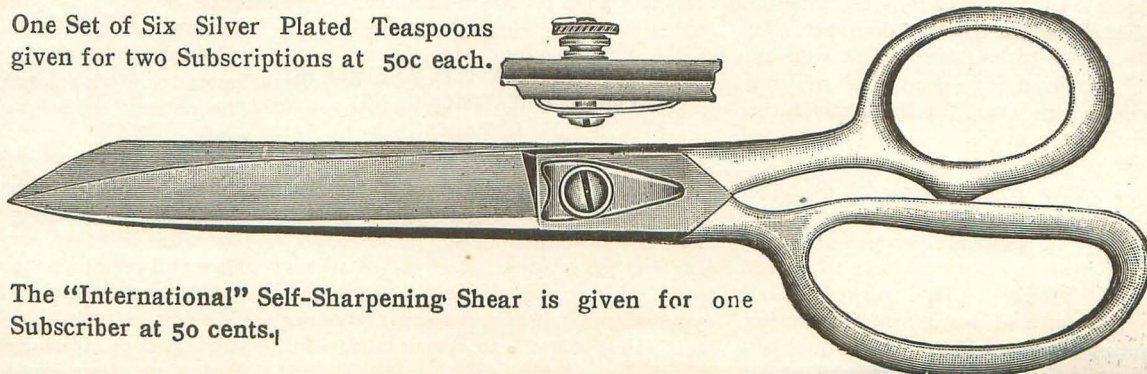
Stereoscope and 25 Views for the Young Folks. Given for 3 subscriptions at 50c each



One Set of Six Silver Plated Teaspoons given for two Subscriptions at 50c each.



The "International" Self-Sharpening Shear is given for one Subscriber at 50 cents.



Golden dent, N. D. 750 and Northwestern dent are good. The Mercer and triumph flints will do well there also but are objected to by many on account of being flint strains.

Rustler's white dent is also making a good showing there and on the warmest soils Minnesota 13 will ripen and is a good variety. Gehu and Dakota are the earliest varieties and are good yielding kinds but are very low growing. For "hogging off" or for pasturing off by any other class of stock they are excellent sorts.

How Much Seed Per Acre

Provide a bushel of seed for seven to nine acres of land if planted in check rows—4 grains to the hill—quantity required varies of course with the size of corn used.

Grow your own seed if possible and gather it during September at the latest. Swing a sack over your shoulder—shot-pouch fashion, with a keg hoop in the mouth of it to keep it open and walk thru the field selecting seed from stalks which suit you as well as ears that are fine. Cure them or dry them out in a well ventilated place. It should not be dried in a room where it will freeze hard, but warmth is less important than a circulation of air and a high temperature is an absolute detriment to the seed.

Hang the ears of corn so that they will not touch one another or lay them out so that they will not be more than two ears deep. When dry keep them where there is no moisture arising. Avoid keeping seed corn over a grain bin, stabled livestock or living apartments where steam arises. Moisture is very hard on seed corn.

In the spring or late winter cut the seed corn. Lay the ears out on a board in a row and taking them in regular order pick out five kernels from each ear and place over its number in the germinator. When time has allowed them to sprout throw out the weak growing ears. This will give you all good strong growing seed corn and avoids the most common cause of missing hills.

How to Plant

Plant corn in check rows four kernels to the hill so that it can be cultivated both ways. Thick-planted corn produces more fodder or roughage than hill planted will do, but it does not allow the weeds to be destroyed so well, nor the provision of so good a soil mulch to conserve moisture for the use of future small grain crops.

Where to Plant Corn

Whether to plant it on fall or spring plowing is the chief question and as corn is only an incidental crop we usually make it accept what we have to offer it. I prefer fall plowed land worked as soon as the ground is fit in the spring. Spring plowing will do. Corn does best of course on rich, well-drained, warm

soil. It needs the same sort of a seed bed as small grain. I would plow under the manure applied to land just before it goes into corn as cultivating the corn will incorporate the manure into the soil well.

Time to Plant

The Indian said, "When the white oak leaves are the size of a squirrel's ear, it is time to plant corn." The scientist says, "When the ground one-inch deep is 55 degrees Fahrenheit, you should plant maize." The two rules will set you at the work of planting on the same date. That date in this state is about June 1st on the average.

Nothing is gained by planting corn too early as it is a southern plant by nature and does not start growth until the soil warms up thoroly.

How to Cultivate the Crop

Use the harrow or weeder on it freely until it is five inches high. Harrow it once every seven or eight days whether it rains or not. Harrow it as soon as the ground forms a crust after each rain. Do not be scared out when you begin harrowing if it looks like the corn is badly hurt. It will come out of its injured appearance and will be the better for it. A weeder is better than a harrow for this purpose as it can be made to dig heavy or light as desired. After it is five inches high cultivate it shallow until it is too high for the cultivator beam to pass over without breaking down the stalks. Cultivate once a week each time after a shower as soon as the land is dry enough to work right as directed for the harrowing. The two row cultivators are good and cover ground twice as fast as single ones. Small corn would be covered up too much perhaps but after it is five inches high little of that occurs.

If you will provide yourself with a one-horse drill you can sow winter wheat or winter rye in the corn the latter part of August. Usually wheat or rye thus sown grows well and the corn furnishes protection for the small grain during the winter by providing a snow covering. If each fifth row or two rows of stalks out of seven are allowed to stand the snow cover will be heavier and where there is danger of too light a covering this is a good provision to make.

HOW A FARMER CAN TELL WHETHER HIS LAND IS WHEAT-SICK OR NOT

H. L. Bolley

I have seen a number of statements in various papers regarding the prevalence of tip-burn and sun scald, blighting by hot weather, etc., in the wheat crop. I am writing this note to call your readers' attention to an interesting fact that they can corroborate for themselves if they wish.

I know it has been very warm during the present season and have no doubt that such hot weather is actually more or less injurious to the crop, but I have examined various fields and various plots of wheat for a number of years past and have learned that when tip-burn or blighted tops of leaves appear as they are showing now on various wheat fields there is present a root disease in the land on which that wheat is growing, either placed there in or on the seed which was sowed in spring or remaining there from the previous crops. So far as the land in the Red River Valley is concerned there is yet sufficient moisture in the ground to maintain the crop without blighting in spite of any temperature which we have had up to this date. When such blighting has occurred it can be taken for granted that the land on which the blighted wheat is growing is wheat-sick.

Any person who wishes to controvert or confirm this statement can do so for himself by going out to his fields and digging up wheat plants. Let him take a chisel or strong butcher knife and inspect the roots of the wheat plants which are tip-burned, or which show the so-called sun scald. At the same time let him go on to some land where there is less liability of disease; that is, either on new land or on well-worked corn land and dig up some wheat plants which do not show the tip-burn or sun scald. Then compare the underground portions of the two kinds of plants and I think that the person who carefully does the digging will learn a lesson with regard to crop rotation, seed selection and seed treatment, which no other line of observation will give.

If you go out into one of your old wheat fields, even tho the soil is rich and moist, you will find plants, which are not properly stooling, that have tip burn and already have yellow or dead leaves at the base. You will find on digging them up that the underground portions are creosote colored or have creosote spots on the stems underground. You will find also that many of the roots are rotted off and perhaps some new roots are starting at points higher up. You will find that many stools have started and died even tho they are shaded from the heat of the sun.

Young wheat plants should never be brown or dark-colored below ground. The natural color is white or greenish white.

Plants of wheat which show the portions underground creosote brown or black colored will never properly stool regardless of the weather conditions. They will remain either few stooled or a single stem sending up on central or single stock. If the land is found to have large spots or areas in which most of the plants are thus single stooled those

spots may be looked upon as wheat-sick in the same sense as certain areas of land are now known to be flax-sick. If you have a nice piece of land which was properly worked under corn cultivation last year in which only scattering plants show tip-burn or creosoted roots and single stool plants, you may rest assured that that land was not particularly wheat-sick when you sowed the wheat but that you sowed wheat which had a considerable percentage of internally or externally infected seeds,—seeds which contained or bore the spores of the wheat root rot.

We blame the weather for entirely too many things. I am writing this statement not to prove that the weather is just right for wheat but to interest a number of farmers in going out into the fields and studying their crops so that they can understand what is meant by "wheat-sick soil" and what a proper crop rotation might do towards purifying such soil. Strictly, wheat diseases must have wheat to grow on: therefore put in some other crops for a while on such land.

If any farmer, after reading this article, is unable to state whether he has spots of wheat-sick land on his farm or is doubtful about whether he has plled up any plants that are wheat-sick or not, will send specimens into my office with proper information regarding where he got them, I think I will be able to explain the matter so that he can understand the portions of the land which are sick and those which are not.

PREVENTING RUN-OFF BY EMBANKMENTS

W. C. Palmer

Preventing the run-off of water by embankments has been practised by Freeman Thorpe of Hubert, Minn. for fifteen years. Trees handled by this system made twice the growth as compared to those grown in the ordinary way. He also claims that much larger crops are grown by the embankment system.

This system consists in plowing parallel to the contours of the land, and making the back furrows rather high so that they will hold the water instead of allowing it to flow off. These embankments must also be close enough together so as to hold all the run-off. When necessary—plow twice, throwing the furrows on the same back furrow, or use the disc to enlarge it. These back furrows are left so that all kinds of machinery can pass over them easily.

It is common experience that the

crop grows best in the low places, at least if the water does not stand on it and the land is not alkali. By this embankment system the low places are distributed all over the farm. Holding the water and the plant food where it is needed and not allowing it to run into the low places where too much of it accumulates so that it often becomes too wet for crops to do their best, and the plant food becomes unbalanced so that the crop is inclined to go to straw.

On Mr. Thorpe's farm the land handled in this way showed more humus and a much darker color than similar land handled in the ordinary way.

Care must be exercised in using this system to have the embankments high enough and close enough together so as to hold all the run-off, else if the water is accumulated and then breaks thru the embankment it would be liable to gully.

It is a sort of terracing with the cost reduced to a minimum. Mr. Thorpe has certainly good results to show for the system, and might it not be worth a trial?

SOUTH DAKOTA'S WONDERFUL DAM

This structure is one of the most spectacular engineering works of the Reclamation Service, and its construction has attracted widespread interest on the part of engineers from all parts of the world.

In order to provide a storage reservoir which will control the flood and normal flow of a whole river, the Government has built an enormous embankment to close the depression be-

tween two hills. This wall of earth is 6,200 feet long, with a maximum height of 115 feet. It is 20 feet wide on top, and 500 feet thick at base. It contains 1,600,000 cubic yards of material.

After the dam was in place the water slope was covered with a layer of carefully screened gravel, on which was laid a paving of concrete blocks, each weighing from 2,000 to 3,000 pounds. The nearest gravel pit was 12 miles away, so the contractors set up a plant at the pit, and built a railroad to the dam on which were conveyed the heavy concrete blocks.

A concrete dam across the river turns the entire stream into a canal with a capacity of 1,600 cubic feet per second, which conveys the water to the reservoir. The reservoir when filled is the largest lake in South Dakota. From it the principal canals carry the water to the irrigable lands in the beautiful Belle Fourche Valley, and 100,000 acres ultimately will be supplied.

Settlement has been rapid here since construction began. Once the land of the cow boy the valley has now become a thrifty agricultural community. The opportunities it offers for the settler, the merchant and professional man, are numerous and varied. A large acreage will be ready for the homemaker in the near future. Three new towns have risen as if by magic within the past few years, affording openings for town people. A branch railroad has been extended to the limits of the project, furnishing excellent transportation facilities.

North Dakota Farmer: Fifty Cents a year; 3 yrs., \$1.00. Agents wanted.

ARE YOU IN NEED

Of the art studies mentioned in the course of study? We have a careful selection of 32 reproductions of the works of the great painters. This collection comprises nearly every picture mentioned in the course, consisting of the following subjects:

We will send the entire collection postpaid for 30 cents.

The Horse Fair.....Bonheur
Coming from the Fair.....Bonheur
A Norman Sire.....Bonheur
The Escaped Cow.....Dupre
The Shepherdess Knitting.....Millet
Wild Cattle of Chillingham.....Landseer
Shoeing the Horse.....Landseer
My Dog.....Landseer
Baby Stuart.....VanDyck
Three Members of a Temperance Society.....Herring
King Charles Spaniels.....Landseer
Lost.....Schenck
Sheep in Pasture.....Bonheur
The Prize Calf.....Landseer
Cattle.....Potter
Landais Cattle.....VanMarcke

Cows at Watering Place.....Bonheur
An Old Monarch.....Bonheur
A Study of Cats.....Lambert
Two Kittens.....Munier
Lions at Home.....Bonheur
Kittens.....Adam
The Song of the Lark.....Breton
A Distinguished Member of the Humane Society.....Landseer
The Gleaners.....Miller
A Thoroughbred.....Hardy
Can't You Talk.....Holmes
The Shepherd's Dog.....Tyron
St. Bernards.....Deiker
DeSoto Discovering Mississippi.....Powell
The Shepherdess.....LeRolie
John G. Whittier

15 different birds in North Dakota, natural colors. 30 cents postpaid
BOTH COLLECTIONS 55 CENTS POSTPAID.

Address **Westland Educator** Lisbon, N. D.

A correspondent-representative wanted in every county. Write for terms.

MOTT CELEBRATES

By W. C. Palmer, Agricultural College

The farmers' institute and celebration held at Mott June 21 and 22 was one of the largest and most successful meetings in that part of the state. After a band concert the meeting was called to order by Mr. Orr who extended a welcome to the visitors and said that Mott realized that to make it a growing town it was necessary that the farmers in the territory tributary should be in a prosperous condition. That the prosperity of a city depends on the prosperity of the farmers. Therefore they were anxious to help the farmers and that this farmers' institute was provided for that purpose. They also felt that some recreation was necessary so the celebration was switched in between the farmers' institute sessions. He then introduced Supt. Hoverstad to take charge of the meeting.

Supt. Hoverstad was glad to see the business men of Mott take so broad a view of the relations of the town and the city and they were developing it. He then mentioned the work that is being done by the commercial clubs of Duluth and Binghamton, N. Y. in encouraging the farmers in the community about them. By helping them to get information as to better methods, by making markets for the stuff that the farmers can raise, by showing how the conditions in the country can be improved. It augurs well for the success of Mott when its business men are taking such forward steps.

The next speaker was L. R. Waldron, Supt. of the Dickinson Sub-station. He took up the subject of plowing. He advocated deep-plowing as it opens more soil to take up rain and to hold moisture. He also laid emphasis on plowing when the soil is moist. That if the soil is plowed dry much of the good that the plowing should do was not brought about. Also that fall plowing is the best. To have enough moisture in the soil to plow properly in the fall it will usually be necessary to disc the land as soon as the crop is removed. This in breaking up the hard crust and in killing weeds saves enough moisture to leave the soil quite moist.

Mrs. Louise Campbell gave a very practical talk on the home. She advocated the medium-sized house and wanted it equipped for convenience in doing the work and for comfort. The living room, dining and kitchen are necessary rooms and bedrooms in number to suit the number to be accommodated. The parlor she classed as superfluous. Lace curtains require too much work in washing. Scrim or fish knot fabric is better as it is easy to clean. The furniture be substantial but plain. In the

kitchen the cook stove or range is the most important thing. Let it be a good one but without a lot of nickled parts as these require a lot of work to keep them clean. A good kitchen cabinet or shelves should be placed convenient to the stove so as to save steps. When possible have a water tank either in the attic so that running water can be had? or have a pressure tank. A good plan is to have a gasoline engine to pump the water in either case. It can also be hitched onto the washing machine and cream separator.

Robert Flint, state dairy commissioner, gave a talk on the care of cream. He called attention to the fact that it takes up odors and that it is an ideal media for germs to work in and especially when it is warm. He cited a case that he had seen a few days ago. The cream was left stand in the kitchen to cool as the lady said, nearby was the stove, so that it would rather warm the cream. He told her that when cooking cabbage the cream would take up that odor, when cooking other things the same would be the case. She said and that's why the butter maker smells the cream so he can tell what we have had to eat all week. I will keep my cream so he can not tell any more what we have to eat. The cream should be placed in a can that can be set in cold water. If it is not cooled it will sour soon.

Other addresses were also made by Supt. Hoverstad, Supt. Waldron, Mrs. Campbell, Commissioner Flint and Prof. Palmer.

The sports included such events as foot races, sack races, high dive, swimming race, baseball game, boat rides thru the park and tug of war.

One event that was not on the program was a good big rain. It was much needed so was enjoyed as much as any one other thing.

CONDITIONS ESSENTIAL TO CLOVER GROWING

W. P. Brooks, of the Massachusetts Agricultural Experiment Station

Successful clover growing is impossible unless the soil conditions are right. These plants will thrive upon a considerable variety of soils as regards texture and composition, but for the best results a deep, mellow, and fairly retentive soil which is well drained is essential. Clovers will absolutely fail if there is any considerable proportion of free acid in the soil, or, in farmers' language, if the soil be "sour." If blue

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

litmus paper in contact with moderately moist turns red as it absorbs the moisture, this is an indication that the soil is sour; but the farmer will be wise if, before incurring any considerable expense for the correction of acidity, he makes a careful test for himself. One of the best farmer's tests can be carried out as follows: Take two small plats of land in a field supposed to possess "sour" soil, and plow them both. Plats containing about 1 square rod each will be sufficient. They should, of course, be located in a representative portion of the field. After plowing, spread about 20 pounds of builders' lime or agricultural lime on one of the plats. Work this lime in deeply with the wheel harrow, the manure or fertilize both plats alike and heavily, and plant table beets. If the soil is sour, these beets will grow much better on the

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

50,000 MEN WANTED IN WESTERN CANADA

200 Million Bushels of Wheat to be Harvested

Harvest Help in Great Demand

Reports from the Provinces of Manitoba, Saskatchewan and Alberta (Western Canada) indicate one of the best crops ever raised on the continent. To harvest this crop will require at least 50,000 harvesters.

Low Rates will be given On All Canadian Roads

Excursions are run daily and full particulars will be given on application to the following authorized Canadian Government Agent. The rates are made to apply to all who wish to take advantage of them for the purpose of inspecting the grain fields of Western Canada, and the wonderful opportunities there offered for those who wish to invest, and also those who wish to take up actual farm life. Apply at once to

Canadian Government Agent

CHAS. PILLING

Clifford Bldg. Grand Forks, N. Dak.

BUY THIS POTATO DIGGER

Extra strong, very durable, light draft, easy on horses, positively best potato digger on market. Fully guaranteed—still priced low. Get free book on Diggers, Pickers, and Sorters. Hoover Mfg. Co., Box 109, Avery, Ohio. Transfer points—Buffalo, N. Y., Detroit, Mich., St. Paul, Minn., Marshalltown, Ia., Idaho Falls, Id., Portland Ore., Spokane, Wash., Winnipeg, Man., Hamilton, Ont., Fond du Lac, Wis.

The Hoover



plat to which the lime has been applied than on the other, and it is safe to conclude that a heavy application of lime will be essential before clovers will flourish. If the experiment indicates that lime is essential, it will probably be needed at about the rate of 1 ton to the acre; the weight referred to to be taken before slacking. If air-slacked lime is used, 1 1/4 tons to the acre will not be too much. The best season for applying lime is autumn or early spring. As a rule, it should be spread upon the plowed land and deeply worked in with the disk harrow.

The writer is aware that splendid clover is often grown where the land is heavily dressed with manure. He is not disposed to deny the possibility of producing fine crops of clover on manure alone. He would, nevertheless, urge that manure alone be not depended upon as a means of enriching clover land. The leading and most valuable element of plant food in manures is nitrogen. The application of this for clovers in any considerable amounts is unnecessary. If clovers are grown on manures, they will feed upon the nitrogen in the manure; they will not draw from the air for that element. Growing clover upon manures, therefore, is not the best economy. Moreover, it is important to point out that the grasses with which clover is most generally grown are greatly invigorated by heavy dressings of manure. A strong, rank growth of the timothy and redtop will tend to crowd out the clover. Fine crops of hay may be produced, but it will not be clover hay, nor rich in clover. The writer would not be understood as urging that manure should never be used on land which is being prepared for clover, altho he would strongly advise against top-dressing clover with manure. On soil which is naturally poor in nitrogen, manure may wisely be used in moderate amounts for crops preceding clover. Heavy dressings would be a mistake. It is far better to use the manure in only moderate or small amounts, and to use it in connection with materials which will supply lime, phosphates, and potash.

We should not forget, in considering the best means of growing clover, that the stock of nitrogen in the air from which it is capable of drawing is practically unlimited. The more of this nitrogen we can gather in the crop and in its roots and stubble, the better. In a certain sense, this trapped atmospheric nitrogen is so much clear gain. In considering this point, it must be remembered that the clover plant, like other plants, must take the different food elements in a certain balanced proportion. Tho the nitrogen the clovers need is practically unlimited in amount, they can not make a heavy growth unless

provided with a great abundance of the elements which they must take from the soil. It is clearly unwise to lessen our chances for gathering the valuable element nitrogen from the air thru failure to supply the soil elements in adequate amounts. The rule, then, in preparing for clover or in top-dressing for clover, should be to supply the phosphates, potash salts, lime, and possibly magnesia in great abundance. With these present in abundance, and with a soil of such a character that it will furnish suitable conditions and supply the needed moisture at critical times, enormous crops of clover may be produced.

One of the most important discoveries of recent times is the now generally known fact that the presence of certain bacteria living in symbiotic relations with the clovers and other members of the clover family, and found in nodules on their roots, is essential in order that these plants may draw upon the air for nitrogen. The nodules which in the case of clovers indicate the presence of suitable bacteria are whitish, more or less elliptical bodies, of about the size of the head of a small pin. These grow singly or in small clusters, mainly on the smaller roots. They can be readily found by taking up clover plants grown under proper conditions, with care not to break off too many of the small roots. Bacteria, as is generally understood, are plants. They are very minute. The bacteria themselves are the veriest dust of the dust. As might be supposed, therefore, they appear to be very widely and freely disseminated, and probably thru the air. The slightest currents of air must carry them. The dust from a freshly turned clover sod must contain countless millions of them. In certain quarters it has been urged that failures to produce good clover are frequently due to the absence of suitable bacteria, or to their presence in insufficient numbers. Certain experiments with sterilized soils * * * indicate to the writer that clover bacteria are everywhere; and it is not his belief that failures to produce satisfactory crops of clover in this State can often, if indeed they can ever, be attributed to the cause under consideration. The writer has never seen a case where, if a soil be brought into proper condition as to drainage and freedom from acidity, and well stocked with phosphates and potash, clovers have failed to grow; and he has never observed clover plants in any locality and failed to find abundance of nodules on their roots. It is, however, of course a possibility that there may be

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

localities where it will pay to inoculate the soil designed for clover with suitable bacteria. This inoculation may be carried out in either of two ways. First, soil from a locality where clover thrives and where the nodules are known to be abundant may be scattered over the field where the clover is to be sown, and immediately harrowed in. Five or six hundred pounds of such soil per acre will be sufficient. Second, a culture of the proper species of bacteria may be used in accordance with directions which will be furnished with it.

Experiments in growing trees at the Edgeley Station, have shown the desirability of choosing a number of the fast and slow growing sorts in planting a shelter belt around the farm buildings. When the trees are arranged in a proper order of planting, very good results may be expected of them.

The cost of milling durum wheat is 3 1/2 cents more per bushel than for the common wheat, due to the extra power and time required. Prof. Ladd in the 21st report of the North Dakota Experiment Station also brings out the fact that the Durum wheat makes about two per cent less flour.

A correspondent-representative wanted in every county. Write for terms.

CRESCENT Galvanized Steel PORTABLE GRAIN BIN



Most practical bin ever made.

RAIN, LIGHTNING, RAT AND VERMIN PROOF

Store your grain without insurance, storage or cartage charges. Hold for top markets.

SEND FOR FREE ILLUSTRATED CATALOGUE
Wheeling Corrugating Co., 192 Clinton St., Chicago, Ill.

Some School Aids

Sent Post Paid

Automatic Knife.....	\$.15
Chain Links.....	.25
Crayons (seven colors).....	.06
Number Cards.....	.12
Folding Squares.....	.25
Hangers (gummed) per dozen.....	.05
Hangers (brass) per dozen.....	.08
Horseshoe Magnet.....	.10
Lead Pencils, per dozen.....	.20
Drinking Cup, Collapsible.....	.12
Magnifying Glass.....	.15
Paints.....	.12
Paints (better grade).....	.25
Passe-Partout Binding.....	.10
Paste (in tubes).....	.05
Rapid Calculator (for Young Farmers).....	.20
Scissors.....	.12
Shears (self-sharpening).....	.25
Shoe Pegs (assorted colors).....	.25

Address, WESTLAND EDUCATOR,
Lisbon, N. D.

CAUSE OF FAILURE

"Had the land been farmed in 1909 and 1910 as it should be the crop in North Dakota could have been twice what it was and with the rainfall that you had here the crop should have been ten bushels per acre instead of what you have reported." This is one of the statements made by a speaker at Dickinson.

"I had charge of 45 demonstration farms in Montana last year and started in the spring. In every case where the land was spring-plowed no crop was the result. It must be kept in mind that the grass never got green and that the rainfall was but 7 inches from Sept. 1909 to Sept. 1910 and only 3½ inches during the growing season. In every case where the land was prepared the year before a crop was secured. That preparation was summer fallow and summer tillage done right. At Chester the yields were from 12 to 20 bushels while at Cut Bank they went as high as 30 bushels. I want to say that corn ground is as good as summer fallow and that I prefer it as in case the year is wet the summer fallow grain will go to straw more than that on the corn land. The land should be plowed deep as that will let in more moisture when it rains and will retain more moisture. Then by keeping the surface soil loose evaporation is lessened. This summer I do not think that we would have had any crop if we had not harrowed the grain after it was up. The first harrowing was given just as the grain was coming up. The second when the grain was 5 to 6 inches high, the third when 7 to 8 inches and the fourth when 9 to 10 inches high. I do not mean that it will be necessary to harrow that much every year, but in a dry season it is very important. When summer fallowing do it right and to do that plow it in June when it will have the most moisture in it, this will be a good time to plow it deep. Pack it as soon as plowed and then harrow at once. And harrow occasionally so as to renew the dust mulch. The disc is a fairly good packer. Remember, however, that growing a crop of corn will give as good results as the summer fallow if not better."

BULLETINS

Bulletin for Boys and Girls

Extension Bulletin No. 3 North Dakota Agricultural College takes up the industrial contests for boys and girls—corn, potato, strawberry, bread-making and sewing contests, rules and score cards being given, as well as instructions.

The instructions for corn-growing are

given under the following heads: Selection of the Land; Preparation of the Seed Bed; Seed; Varieties; Planting; Cultivation; Harvesting; Selection of Exhibits; Care of Exhibit; Observations; Yield, and Seed for Future Use.

The instructions for the other contests are given in much the same way and in language for boys and girls and are illustrated.

The bulletin also contains a write-up of the North Dakota Boys' and Girls' Institute, and gives the constitution of this organization.

Prof. G. W. Randlett, Director of Extension Department, and Miss Jessie M. Hoover, Professor of Home Economics, are the authors of this bulletin, which can be had by writing to the Extension Department, Agricultural College, N. D.

FARMERS WILL TALK

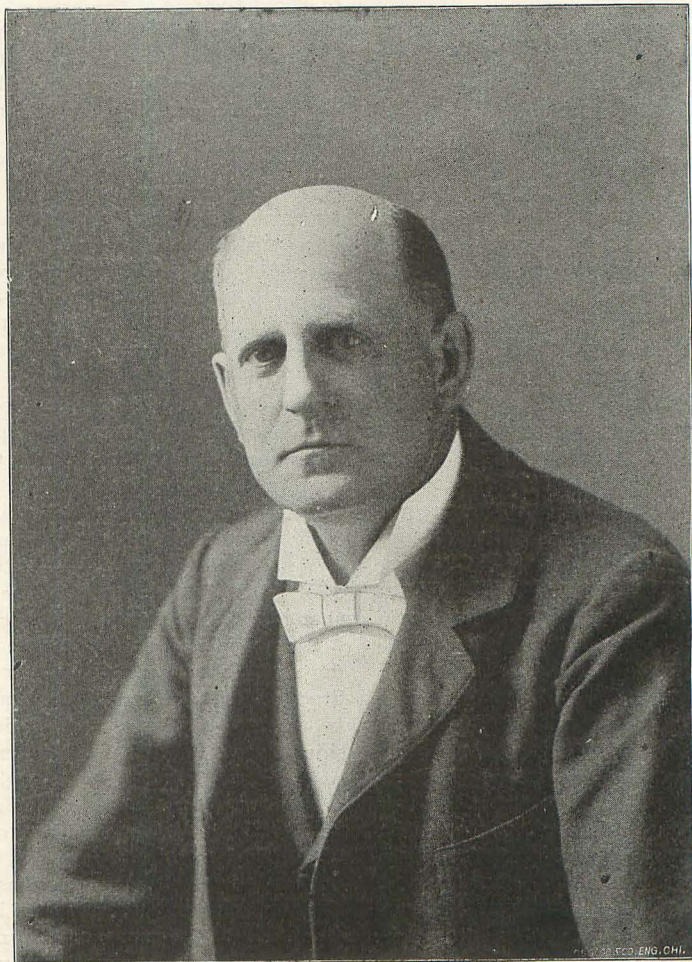
But They Won't Cultivate a Headache By Reading Dry Statistics.

One of the important discoveries made by the agricultural experiment stations has nothing to do with plant life. They have found out how to get the message to the farmers.

For years the experiment stations have been making elaborate investigations meant to increase and improve farm production. They issued bulletins by the ton, sent them free, talked, cajoled, scolded. They directed facts in abundance at the farmer, but ever there was a feeling at the experiment stations that the shots were going wild.

The farmer was warned of the enormous amount of money he was losing, and then he was informed of the gigantic sum he might save. As many combinations were worked on him as a burglar might try on a safe, with about the same chances of success apparently. The experiment stations knew the farmer was there, but they could not get to him.

Finally the agronomists and the entomologists, and the zoologists, and the bacteriologists, and the olericultur-



William A. Scott, President of the Inter-State Fair Association.

The success of the fair held at Fargo this year is largely due to the executive ability of Mr. Scott and his co-worker Secretary William Ballou.

ists, and the pomologists and all the rest of the crew threw down their implements and went out to experiment on the farmer. They made the discovery that he is a sociable animal, even more so than most of the genus homo. They found he did not care to get a headache over long technical treatises; that he liked to make talk, and wanted to be sociable in whatever he was doing. They gathered enough material to fill a good-sized bulletin, which, robbed of details, was to the effect that if the experiment stations wanted the farmer to do a certain thing and nobody around the house was talking about it, he didn't do it. But if his wife was interested and the children were interested and the matter was a subject of family and neighborhood conversation, he would go ahead and act on good advice from the stations. —Kansas City Star.

ENORMOUS EVAPORATION OF WATER

If you are able to weigh the water that evaporates from the surface of your cornfield the day after a heavy rain, you would be surprised to find that it would amount to several hundred barrels per acre.

You can't cultivate immediately after it stops raining, but get onto the ground as soon as practicable.

While the surface is beaten down by the rain and it is comparatively hard, moisture leaves it with a rush. A day's delay in cultivating at this time may mean the difference between a good and a poor crop of corn, should the moisture supply be deficient during the latter part of July or the first part of August.

Keep the future in mind. There is no danger of getting too much rain, but there is danger of not getting enough, so do save all the water you possibly can.

LIGNITE COAL GIVEN A TEST

Government Report of Value of the Flickertail Project Is Out

The bureau of mines, thru its experiments at the Pittsburg testing station, believes that it has developed a fuel supply for the western part of the country that will be of immense value. It has succeeded in making briquets without the use of a binding material out of lignite from California, Texas and North Dakota. The difficulty heretofore with the manufacture of briquets has been the cost of the pitch which is considered

necessary to hold the coal dust together.

Lignite is a poor form of coal, brown in color, and is found in great abundance in several western states, notably, North and South Dakota, Montana and Texas. Its use has been greatly restricted because of its tendency to slack or turn to dust shortly after it is mined and brought to the surface. Because of the great amount of moisture it contained, between 30 and 40 per cent, the lignite has been difficult to burn under boilers or in stoves. There is said to be 150,000 square miles of territory underlain by lignite and millions of acres belong to the government. The bureau of mines, sometime ago, conducted a series of ex-

periments at the pumping plant of the reclamation service, at Williston, N. D. and succeeded in developing a furnace that would burn the lignite satisfactorily. But this did not solve the problem of the transportation of the lignite. The bureau therefore sent to Germany, where the briquetting of lignite is much farther advanced, and obtained from that country a powerful briquetting machine. The experiments have gone far enough to indicate that lignite can be satisfactorily briquetted at a cost that makes the manufacture of briquets commercially possible.

The results of the experiments are

(Continued on Page 20)

Special Round-Trip Fares to the Pacific Coast

Via the Scenic Highway

From Lisbon to Seattle

Tacoma, Everett, Bellingham, Wash.; Vancouver, Victoria, B. C.; Astoria, Portland, Ore., and return via direct lines.

\$50.00

Tickets on sale June 27 to July 5 inclusive, August 7 to 11 and 14 to 17 inclusive.

From Lisbon to North Pacific Coast

Via California in one direction.

\$76.00

Tickets on sale June 27 to July 5 inclusive, August 7 to 11 and 14 to 17 inclusive.

From Lisbon to Seattle

Tacoma, Everett, Bellingham, Wash.; Vancouver, Victoria, B. C.; Astoria, Portland, Ore., and return via direct lines.

\$60.00

Tickets on sale June 1 to Sept. 30 inclusive.

From Lisbon to North Pacific Coast

Via California in one direction.

\$86.00

Tickets on sale June 1 to Sept. 30 inclusive.

RETURN LIMITS: On tickets sold June 27 to July 5, return limit is Sept. 15. On tickets sold June 1 to Sept. 30, return limit is Oct. 31. On tickets sold August 7 to 11, and 14 to 17, return limit is October 15, 1911.

Daily Through Trains

With Standard and Tourist Sleeping Cars and Dining Cars for all meals.

Stopover either way at Yellowstone Park. Low fares also for the Park trip by itself. Call on or address

J. A. G. RISK, Lisbon N. Dak.

Northern Pacific Railway

A. M. CLELAND, Gen'l Pass'r Agent, ST. PAUL



North Dakota Farmer

Entered as second class matter in the postoffice at
Lisbon, North Dakota.

PUBLISHED EVERY MONTH

W. G. CROCKER, PUBLISHER
Lisbon, N. D.

E. F. Ladd, Editor **FARGO, N. D.**

BUSINESS MANAGEMENT, LISBON, N. D.

ASSOCIATE EDITORS

PROF. J. H. SHEPPERD, State Farm Notes.
PROF. W. B. RICHARDS, Livestock.
PROF. C. B. WALDRON, Fruits, Forestry, and
Insect Pests.
GEO. HAUSMANN, Poultry.

TERMS: One Year, 50 cents.

Remittances should be made by Draft, Post-office Order or Express Order.

All Articles and Editorial Matter should be addressed to E. F. Ladd, Fargo, N. D.

Address all business correspondence to the Lisbon office.

Vol. 13 JULY, 1911 No. 1

If the farmers were as careful in marketing their eggs as they require the grocers to be in selling canned goods there would be less criticism by the cooks.

In your rotation plan why not add a little winter rye? It is a most excellent fodder to cut green and is usually a profitable crop. Be sure of a firm seed bed and sow not later than the first of September.

A habit quite a number of farmers have is to run the binder up to the roadside and leave it there until the next harvest. Should it become so rusted that it is unfit for use the next year it can be sold for scrap iron at about \$8 per ton.

Many of our farmers are meeting with excellent success in raising all kinds of small fruit. As the farmers ceased to be wheat-crazy they turned their attention to the comforts and luxuries that the vegetable garden and the fruit garden afford.

The licensing of automobiles by the State Department disclosed the fact that there is one automobile in North Dakota for every ninety inhabitants. It is certainly an evidence of prosperity or extravagance, or of both.

At \$2.75 per bushel for Navy beans Richard Johnson, who lives near Carpio, expects to realize a handsome sum on the forty acres he has put in beans. To be sure it requires considerable labor to harvest the crop, but with a yield of

from forty to sixty bushels to the acre there will be ample compensation.

The wheat raisers of North Dakota cannot expect to succeed by devoting a few weeks in the spring to seeding, three weeks in the summer to harvesting and threshing and three weeks in the fall to shallow plowing. The farmers now devote their entire time to the crops and animal husbandry.

This issue of the North Dakota Farmer begins the thirteenth volume. We have worked unselfishly for the best interests of the farmers and have never once lost faith in the ultimate success of this great agricultural state. We ask our readers to continue their valued patronage and work together for the upbuilding of a state agricultural paper that will be an honor to the Commonwealth.

Some may take exception to the publication of discoveries such as that of Prof. Bolley regarding wheat-sick soil, for fear it may divert the tide of immigration. North Dakota has little to fear from the publication of such discoveries. His discovery of flax wilt saves millions of dollars to farmers who might still be following flax with flax and charging the crop failure to the climate or a dispensation of Providence.

The Agricultural Department of North Dakota is offering some cash prizes for collections of grasses and grains. We trust that many exhibits will be forwarded to Commissioner Wallace C. Galbreath, Bismarck, on or before August 31st. As the Department will pay express charges there is no excuse why representative exhibits should not be made. The prizes offered on page twenty-seven of this issue are certainly very attractive.

For several months we have been publishing in the Home Department recipes taken at random from a cook book which we published this spring. This book sells for fifty cents and contains about one thousand choice recipes compiled by North Dakota housewives. To any one who will send in \$1.00 for a three-year subscription or for a renewal and one new subscriber we will mail this cook book postpaid. This offer is made nowhere else in the magazine.

We strongly urge the seeding of winter wheat upon ground now seeded to corn. For the past eight or ten years experiments have been made in this state with winter wheat. Most of the experiments have failed except where there is some means for holding the snow. If one corn row out of every four is left standing and the space between

seeded to winter wheat by means of a one-horse cultivator the chances are excellent for securing a crop that will mature before the hot winds of July.

The corn crop of North Dakota will be double that of any previous year as many farmers are adding it to their rotation schedule. The increase in acreage is due in a large measure to the interest awakened by the Pupils' Corn Contest, which have been held during the past four or five years. The young folks, following the instructions given at the Contest and in the Contest Bulletins, have taught the old folks at home some valuable lessons and these lessons have been well illustrated in the shape of a larger yield than was ever raised on the old farm.

When we take into account the very limited rainfall of 1910 it is surprising that the conditions in the state are so favorable. The present conditions are in large measure due to intensive farming methods. In many sections of the state conservation of moisture has been the watchword and in those sections where the conditions are now unfavorable there was so little rainfall during the season of 1910 that there was very little to conserve. We strongly urge our readers to heed the suggestion made by President Worst: "Let the disc follow the binder."

By the time this issue reaches our readers the Reciprocity Agreement will have passed the Senate by a large majority. While many thruout this state have been bitterly opposed to this Agreement and have felt that it would work injury to the farming interests, we honestly believe that if the farmers of North Dakota will follow the advice that has been given again and again in these columns to diversify by directing their energies toward dairying, cattle raising, horse raising, and hog raising, the Reciprocity Agreement will work little injury.

Dr. Wiley, head of the National Pure Food Department, has been criticized by Secretary Wilson for expending amounts in excess of those allotted by law for scientific investigations. The public little realizes what a desperate fight Dr. Wiley has been carrying on against the manufacturers of adulterated foods. Instead of being criticized and handicapped in his work he should be upheld by the Government and by every citizen who is in favor of pure food and is opposed to the many harmful adulterated foods and patent medicines that are placed upon the market by unscrupulous manufacturers.

Pure Food Advertisers

The products advertised below are in compliance with the pure food law of North Dakota and of the highest grade.
ASK YOUR GROCER FOR THEM.

"BUY"

"EAT"

HOME BRAND

Pure Food Products

"ECONOMY" "SATISFACTION"

Griggs, Cooper & Co.

MANUFACTURING
WHOLESALE
GROCERS,

ST. PAUL, MINN.

Main Offices:
CORNER THIRD AND BROADWAY

DR. PRICE'S
JELLY

DESSERT
NUTRITIOUS-WHOLESAME

One package, 10 cents, makes one pint of wholesome Fruit Jelly. All flavors from true fruits.

The Purest of Pure Food Products

are packed under the Brands of

Kokomis
PURE FOODS

Flawatha
PURE FOODS

Blue Bird
PURE FOODS

Wampum
PURE FOODS

Stone-Odean-Wells Company
DULUTH, MINN.

BRANCH HOUSES-Minot, Bismarck, N. D. Billings, Bozeman,
Butte, Great Falls, Mont.

MONARCH BRAND



FOOD PRODUCTS

A GUARANTY OF PURITY. A WELCOME GUEST at every table where the HOUSEWIFE demands the BEST. THE MONARCH LABEL insures QUALITY in Coffee, Catsup, Pickles, Maple Syrup, Canned Goods or any article bearing the MONARCH BRAND of REID MURDOCH & CO. CHICAGO.

ANOTHER PURE FOOD PRODUCT

CEREKOTA

Self-Rising

Pancake Flour

Is a Scientific Preparation of Healthful Appetizing Ingredients
and the Best Flour Milled in North Dakota

GUARANTEED Pure and Wholesome

Ask Your Grocer for a Trial Package

Bemmels Milling Company

Sole Manufacturers

Lisbon,

North Dakota

Livestock Department

FARM AND STOCK NOTES

Injudicious feeding leads to disease and loss.

The best composted manure produces the quickest results.

Decaying organic matter in the soil adds to its warmth.

A high selling price does not lessen the cost of production.

Nitrogen, phosphoric acid and potash make up the complete fertilizer.

A young colt should never be hitched to a load he cannot start.

A horse that is trained without blinds is usually the safer horse.

Systemizing the work on the farm is one way to lighten it.

Regular hours of feeding and milking go a long way toward making dairying successful.

Horse breeding requires considerable capital, but it offers large dividends when successfully handled.

There is no better place to fit a colt for market than upon the farm.

It is not what we produce, but what we utilize that makes the profit.

Mixed food is better for all animals as one helps the digestion of the others.

A good way to learn a specialty is to try it on a small scale and gradually increase.

The more time it takes to fatten an animal the greater becomes the cost of maintenance.

It is not the hardest labor but, the best directed labor, that accomplishes the best results.

When a hog is at a standstill there is a loss of food given and a loss of time.

Free exercise for the pigs develops muscle and frame and adds to the value of the pork.

Many a man feeds well, but he feeds poor dairy cows and the result is not very profitable.

Stock can be fed with profit only when they make a steady gain. Any falling off costs doubly to regain.

In nearly all cases animal manures are most economically used when applied to the soil as fast as collected.

When an animal matures it gains very slowly as it does not then grow the gain is in fat only.

An excess of any kind of food fed to an animal beyond its capacity of digestion and consequently assimilation is a waste.

A correspondent-representative wanted in every county. Write for terms.

For practical purposes the great weight of a draft horse should be made up of large strong bones and powerful muscles thruout the frame.

If a pig is grown right and fed right there is no time in the life of a pig when he will make any more pork than between eight weeks and three months in proportion to food consumed.

While one class of stock may at times pay better than another it is well not to lose sight of the fact that the average farm needs a few head of every sort in order to make the best and closest use of all the products.

HOG HINTS

It is common sense that a mature sow will produce larger and more perfect pigs than a very young one.

Free range for hogs does not mean that they should be allowed to run in the highways and thru the neighbors' fences.

Some people claim that a hog is a scavenger by nature, but he certainly thrives better on clean feed and decent surroundings.

The sow should be given a warm millfeed slop, made fresh for each meal, whole oats and a little sound corn twice a day.

Every inclosure for the hogs should be perfectly tight, and with excellent wire fences that are now manufactured this is an easy matter.

Be sure that you furnish proper quarters for the farrowing sow. You can't afford to lose a single one of the little "squealers" this season.

When pigs are 6 weeks old they may be turned into grass and clover pasture if the weather is warm; if cold and ground wet, keep them in dry, roomy pens.

When acorns are fed pigs their flesh is apt to become very soft and oily, but this difficulty may be overcome by feeding corn for three weeks before slaughtering.

Young pigs should have the best of care and get to eating nicely while on the mother. They should not be weaned until they are nine weeks old if good results are obtained.

There is no better feed for young pigs than fresh skimmed milk. It is also a good supplementary feed for brood sows, and, in fact, a good feed for hogs of all kinds and ages.

Spring pigs can get along very well without shelter except from rain until fall, then if you are so shiftless as to fail to provide shelter they are better able to stand cold and rain.

When the sow is given a warm, rich slop, or other milk-producing feeds just after her pigs are born, a strong milk flow is forced. The new-born pigs get too much and have diarrhoea which often kills them.

THE BLOATING IN CATTLE

It is common for cattle to bloat up somewhat when first turned on fresh pasture, especially clover. Sometimes they need attention, and will die if it is not given at the right time. The trouble is not really very serious, however, and it is not hard to treat.

Bloating can often be prevented in the first place by filling the cattle up with dry hay before they are turned onto the green feed. They will not fill up so rapidly on the clover and will stand less chance of bloating. On the same principle, it is good policy to have a straw-pile in the pasture so that the cattle can get to it. They will often run to it and eat the dry straw when they feel the bloating, this will relieve them materially.

If any animal is badly bloated the only thing to do is to tap the rumen and let the gas out. This is not at all a serious operation. Every farmer should have a trocar and canula for such purposes but in an emergency case the pocket knife will serve. A small opening at the highest point of the swelling, on the left side, will afford great relief to the animal immediately. There is little danger of missing the rumen, as it holds from 40 to 60 gallons. Almost any point between the hip and last rib on the left side will hit it.

Many internal remedies have been advised for this trouble, but they are neither sure nor so convenient as simply tapping.

A correspondent-representative wanted in every county. Write for terms.

YOU WANT THESE TYPEWRITTEN PRESCRIPTIONS for Stomach Tube Colic Remedy, Dynamite Packing (for fistulas, etc.) Spavin Remedy, Contagious Abortion Remedy (cattle), French Heave Treatment, How to grow new potatoes any time of year. Six others equally valuable. All for twenty-five cents silver or M. O. (no stamps).

VETERINARY FORMULAS COMPANY
Lock Box 335 Grand Rapids, Mich

HOLSTEIN CATTLE

THE MOST PROFITABLE DAIRY BREED

Illustrated Descriptive Booklets Free

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA
F. L. HOUGHTON, SECY, BOX 135, BRATTLEBORO, VT.

FEED FOR YOUNG CALVES

The calf should be allowed to take the first milk from its dam, as nature requires this, and if her rules are violated there will surely be trouble. After the calf has once nursed, advises Roy C. Potts of the Oklahoma Station, it should be removed from its mother, but fed on its mother's milk for a few days, depending on the vigor of the calf. Commence to add skim milk after a week or ten days, adding a small amount at first and increasing it daily until the calf is on an entire skim-milk diet.

There are a few simple rules to follow in growing calves on skim milk. The milk must be sweet; it

calves cost 10 cents per pound and the calves fed skim milk make as good growth as the ones fed whole milk.

LIVESTOCK INCREASE

Statistics relative to the domestic animals, poultry and bees reported on farms and ranges for the state of North Dakota at the thirteenth decennial census, April 15, 1910, are contained in an official statement issued by Acting Director Falkner. It is based on tabular summaries prepared under the direction of Dr. Le Grand Powers, chief statistician for agriculture in the bureau of the census. The figures are



Horses on Farm of Frank Peltier in Rolette County

must be as warm as the mother's milk and care must be taken not to feed too much of it. There are many more calves injured by being fed too much skim milk than there are by not having enough.

Four quarts at a feed twice a day is sufficient for the average size calf for the first month. Add a spoonful of ground flax seed to each feed and teach the calf to eat a little cornmeal as soon as possible. Corn is the most economical food to balance a ration containing so much skim milk. Feed shelled corn as soon as the young calf will digest it well.

At the Indiana Experiment Stat on a record of work is given to show the relative cost of calves grown on skim milk and on whole milk. The skim-milk calves cost less than 4 cents per pound and the whole-milk

preliminary and subject to slight revision later, when a few other farms whose returns, now incomplete, are included in the final tables. It is not expected that these additions will materially modify the amounts or rates stated herein. Special attention is called to the fact that the present relates only to live stock on farms and ranges and does not give the figures for the cities and towns of the state.

An Aggregate Increase of \$65,764,000

The aggregate value of all domestic animals, poultry, and bees in 1910 as reported was about \$108,194,000, as compared with \$42,430,000 in 1910; the amount of increase being \$65,764,000, and the rate 155 per cent.

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

CLASSIFIED ADS.**One Cent a Word**

Small advertisements will be classified under appropriate headings at the low price of one cent a word for each insertion. Cash must accompany all orders. Each initial or number must count as one word. TRY IT HERE.

LIVE STOCK**HORSES****FOR SALE**

Percheron, Belgian and Shire horses
J. W. & F. T. PETERSON, Litchfield, Minn.

CATTLE

North Branch Stock Farm. High class Short-horns. Herd, bull, Supreme Judge 177722—pure Scotch, John Donnelly, Grafton, N. D.

FOR SALE**GALLOWAY CATTLE**

J. W. & F. T. PETERSON, Litchfield, Minn.

SWINE

POLAND CHINA PIGS, also Shropshire sheep. Seed grain. GEO. N. SMITH, Amentia, N. D.

EGGS AND POULTRY

EGGS FOR HATCHING. Express prepaid \$2 per 15, from pure bred Golden Wyandottes and White Plymouth Rocks (Fishels strain.) Choice stock for sale. Send for Catalog. C. H. McGEE, Oriska, N. D.

MISCELLANEOUS

Envilla Stock Farm, Cogswell N. D. will quote you special prices on Angus Cattle, Shetland Ponies, Duroc Jersey Hogs, Wolfand Fox Hounds Pure Bred Poultry, Pet Stock. Write them.

FOR SALE One of the finest and best improved farms in this county, 3 1/4 miles from Bowbells, part cash, worth \$5,000, for \$3,900. H. L. Lyon, Bowbells, N. D.

THE MOUSE RIVER LAND AND LOAN COMPANY AND THE MOHALL STATE BANK

At Mohall, Renville County, North Dakota, have a large list of farm lands for sale, and terms and prices are better than in any other part of North Dakota. They would be glad to have you write them for prices and terms. Our slogan is, "Own your own home in the Mouse River Loop."

To sell your property write Northwestern Business Agency, Minneapolis.

FOR SALE: Registered Jerseys. Bull calves and one mature Bull at reasonable prices. W. G. Weeks, Backoo, N. Dak.

RED-POLLED AND GALLOWAYS**Shropshire Bucks**

J. S. BIXBY, - - LISBON, N. D.

WANTED—Young Men to take the Railway Mail Clerk examination called for the Dakotas; salary \$900, work half time, common school education required. Passing means appointment. American Institute, Dept.—68-Dayton, Ohio.

N. D. Homesteads

THE BERTHOLD RESERVATION is the choicest agricultural land in North Dakota. It will soon be opened for settlement. Send 25 cents in coin to Geo. J. Smith, United States Commissioner at Plaza, N. D. and get his valuable booklet telling all about the opening and the land. Send today.

FOR SALE. Creamery in first class condition at a bargain at Crystal, N. D. For further information write to J. S. GESTSON, Sec. CRYSTAL, N. D.

FARMS WANTED

TO FARM OWNERS: Our plan puts you into communication with buyers at low cost; write for particulars.

Co-operative Advertising Company
Fergus Falls, Minn.

The total value of the domestic animals was reported as \$106,706,000 in 1910, as against \$41,952,000 in 1900, or 154.4 per cent.

The poultry were valued at \$1,485,000 in 1910, as compared with \$477,000 in 1900; the gain being \$1,008,000, or 211.2 per cent.

The bees were valued at \$3,086 in 1910, and \$1,474 in 1900; the increase amounting to \$1,612, or 109.4 per cent.

Increase and Decrease of Domestic Animals, by Classes

Horses and colts had a greater value than any other class of domestic animals, both in 1910 and 1900. In 1900 the reported value of that class was about one and one-half times that of cattle, while in 1910 it was nearly five times as great as the value of cattle. The total value of horses and colts in 1910 was \$83,412,000, while in 1900 it was \$22,729,000, an increase of 267 per cent. The total value of cattle in 1910 was \$17,727,000, as compared with \$15,811,000 in 1900, an increase of 12.1 per cent. Next in order in 1910 were swine, with a total value of \$3,153,000, as compared with \$930,000 in 1900; an increase amounting to 238.0 per cent. The total value of sheep and lambs in 1910 was 1,235,000, while in 1900 it was \$1,987,000. This was the only decrease in any class of domestic animals, and amounted to 37.8 per cent. Mules and mule colts in 1910 were valued at \$1,150,000, as compared with \$476,000 in 1900; an increase of 141.4 per cent. Asses and burros in 1910 were reported as valued at \$22,900, as against \$13,200 in 1900; the increase amounting to 73.4 per cent. Goats and kids in 1900 were valued at \$5,503, as compared with \$5,308 in 1900; an increase of 3.7 per cent.

Horses and mules in 1910 constituted 78.2 per cent of the value of all livestock; cattle, 16.4 per cent; swine 2.9 per cent; poultry, 1.4 per cent; sheep and lambs, 1.1 per cent; and bees, goats and kids, and asses and burros, each less than one-tenth of 1 per cent.

Number of Farms Reporting Each Class

The total number of farms in the state in 1910 was 74,165. Of these 96.5 per cent, or 71,553, reported domestic animals; 94.2 per cent, or 69,861, reported horses or colts; 86.6 per cent, or 64,246, reported cattle; 57.9 per cent, or 42,961, reported swine; 5 per cent, or 3,673, reported sheep or lambs; and 3.8 per cent or 2,793, reported mules or mule colts. Only .4 per cent, or 293, reported goats or kids, and .1 per cent, or 95, reported asses or burros.

North Dakota Farmer: Fifty Cents a year; 3 yrs., \$1.00. Agents wanted.

Number, Ages, and Average Values of Domestic Animals, by Classes

The total number of cattle reported in 1910 was 745,181. Of these, 261,917 were dairy cows, the total value of which was \$8,700,000, and the average value, \$33.56. The number of farms reporting dairy cows was 63,029, or 85 per cent of the total number of farms in the state. On the other hand, cows not kept for dairy

purposes numbered 118,945, and their average value was \$27.25. These cows were reported by 22,439 farms, or 30.3 per cent of the total number of farms in the state. The average number of dairy cows per farm reporting was 4, while the average number of cows not kept for milk, per farm reporting that class, was over 5. Yearling heifers—that is, heifers born during the year 1909—numbered 104,098; average val-

ST. PAUL UNION STOCKYARDS COMPANY REPORT FOR JUNE

Comparison of Receipts and Shipments of Livestock

Railroads	Receipts					Total Cars
	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P...	189	110	1629	139	.....	35
C. G. W.....	608	656	4213	1028	.....	98
C. M. & St. P.	3565	1400	13255	3199	312	369
M. & St. L....	2605	1222	12653	1443	6	299

North
Dakota
Grown

Winter Wheat

Graded
Selected
and Tested

Our North Dakota grown Turkey Red Winter Wheat has stood the test of our most severe seasons, heavy yielder, matures early escaping rust, hot winds and hail. Order some of this wheat early and you will never regret it, supply limited.

WINTER RYE

Amber Winter Rye is a grand success in the Northwest, thrives on any soil, produces large returns of grain and hay, fine for late fall pasture. We have never had a failure with our Amber Winter Rye in North Dakota. Write for samples and prices.

FARGO SEED HOUSE, Dealers in strictly high-grade seeds
FARGO, - - - NORTH DAKOTA

CENTRE-LANE STOCK FARM

BREEDER OF: Black Percheron and Hambletonian Horses, Red Polled Cattle, Poland China Hogs, White P. R. Chickens, White Holland Turkeys, White Embden Geese, White Pekin Ducks and White Guinea Fowls.

GROWER OF: Minnesota No. 169, Spring Wheat, Swedish Select Oats, White Hulless and Success Beardless Barley, Turkey Red Winter Wheat, N. D. 959 Winter Rye, Northwestern Dent Corn, Early Ohio Potatoes, Timothy and Alfalfa.

Young Stock and Pure Seed, for sale. Write me for particulars.

J. A. ENGLUND, Prop.

Kenmare, North Dakota.

THE ENVILLA STOCK FARM

COGSWELL, NORTH DAKOTA

SHETLAND PONIES. Your own price.

REGISTERED ANGUS CATTLE. Must be sold.

WOLF AND FOX HOUNDS that will catch and kill. Fine pups \$5.00 each

PET STOCK OF ALL KINDS. PURE BRED POULTRY, all varieties.

We can please you both in Quality and Price

L. H. WHITE, Prop.

COGSWELL, N. D.

North Dakota Breeders We Are With You

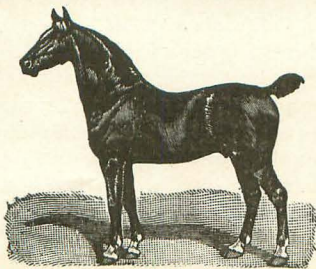
Why not send for special rates at once

Address NORTH DAKOTA FARMER, LISBON, N. D.

ue, \$14.85. Mature steers and bulls born before 1909, were 58,230 in number; value, 36.12. Yearling steers and bulls, born in 1909, numbered 71,498; average value, 16.37. The total number of spring calves born in 1910 was 130,483, and the average value, \$6.71. It may be noted that the census of 1900 showed a larger number of calves, namely, 156,420. This difference is due to the fact that the census of 1900 was taken as of date June 1, after all the spring calves were born and the group "calves" included all cattle less than 1 year of age, so that the number and average value of calves were greater than in 1910, when the census was taken on April 15, and only "calves born in 1910"

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

For Sale

Fine Farm in the Best Watered Valley in Montana.

Forty acres under plow. A never-dry river runs across corner. County Road runs diagonally thru land. Irrigation ditch north of land, if you care to use it. Five miles to railroad. One of the finest apple orchards in world near mouth of valley. 400 acres plowed. Fine for grain, flax, etc. 225 acres grazing land. May divide if desirable.

NO CROP FAILURES

Inquire of

R. M. SCHMERLER

17 South Sixth Street, Mpls. Minn.

C., St. P. M. & O	5576	2386	23586	4072	45	594
C. B. & Q.	236	153	1044	1288	.....	32
M. St. P. & S. S. M.	2421	2362	4464	898	19	172
Gt. Nor.	3674	3917	14186	1808	30	393
Nor. Pac.	1985	1414	2310	1281	777	146
St. P. B. & T. ....	.....	.....	.....	.....	.....	.....
Driven In.	767	114	1351	195	.....	.....
Total.	21626	13734	78691	15351	1189	2138
Increase. ....	.....	.....	5475	.....	914	.....
Decrease.	3943	3280	.....	70	.....	79
Jan. 1 to date	134317	68560	505011	103102	3184	12740
Increase.	2186	13923	131553	.....	329	1400
Decrease. ....	.....	.....	.....	43154	.....	.....
Average Wts.	722	158	234	84	.....	.....

Shipments

C. R. I. & P.	872	80	.....	93	35	25
C. G. W.	1603	184	504	433	11	61
C. M. & St. P.	4665	568	16061	1409	226	333
M. & St. L.	1246	227	.....	.....	51	36
C. St. P. M. & O	2325	529	7969	2141	119	182
C. B. & Q.	1002	64	.....	.....	657	55
M. St. P. & S. S. M.	2207	171	139	2656	51	83
Gt. Nor.	1117	193	.....	163	26	34
Nor. Pac.	801	153	.....	133	8	32
St. P. B. & T. ....	.....	.....	.....	.....	.....	.....
Driven Out.	739	531	1	417	17	.....
Total.	16577	2700	24674	7445	1201	841
Increase.	343	.....	11097	2413	901	148
Decrease. ....	.....	698	.....	.....	.....	.....
Jan. 1 to date	89147	23082	145362	52115	3255	4747
Increase.	9068	7183	75796	.....	86	847
Decrease. ....	.....	.....	.....	34581	.....	.....

Comparison of the Origin and Disposition of Livestock

Origin of Livestock Received

States	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
Minnesota.	16093	11343	62797	12216	47	1644
Wisconsin.	1063	1388	4640	1385	10	129
Iowa.	27	.....	416	.....	.....	7
Far South. ....	.....	.....	.....	.....	.....	.....
So. Dakota.	2486	412	6645	678	37	183
No. Dakota.	1824	527	4193	133	23	128
Montana. ....	.....	.....	.....	939	1037	42
Montana. ....	.....	.....	.....	939	1037	42
Far West. ....	.....	.....	.....	.....	35	1
Manitoba & NWT. ....	.....	.....	.....	.....	.....	.....
Far East. ....	.....	.....	.....	.....	.....	.....
Returned.	133	64	.....	.....	.....	4
Totals.	21426	13734	78691	15351	1189	2138

Disposition of Livestock

S. St. Paul Pkrs	6070	10678	53612	7958	.....	.....
Cy & St. Butch	628	614	574	684	.....	37
Outside Packers	65	332	24100	637	.....	264
Minnesota.	3905	663	.....	1024	63	123
Wisconsin.	4880	369	.....	1732	59	151
Iowa.	3228	351	.....	603	244	104
Nebraska.	205	.....	.....	.....	.....	4
Kans. & Mo. ....	.....	.....	.....	.....	.....	.....
So. Dakota.	517	.....	.....	.....	.....	12
No. Dakota.	283	133	.....	.....	.....	11
Mont. & W.	30	7	.....	.....	.....	2
Far South.	50	.....	.....	.....	72	4
Manitoba & NWT	8	.....	.....	1038	.....	6
Mich. & E. Can.	145	.....	.....	240	252	14
Chicago.	734	.....	.....	943	58	29
Ills (ex Chicago)	535	70	.....	544	342	32
Returned.	133	64	.....	.....	.....	4

were included in the comparative group.

The total number of horses and colts reported in 1910 was 649,741. Of these, 563,592 were classed by the census as mature horses—that is, horses born before 1909—and their value was \$78,717,000, and average value \$139.67. Yearling colts, which are colts born in 1910, were 24,602 in number, and their average value was reported as \$33.57. It may be noted that 20.4 per cent of the farms of the state reported colts born in 1910.

The total number of swine in 1910 was 331,585, of which 60.2 per cent, or 199,695, were classed as "Hogs born before 1910." The total value of these was \$2,798,000, and the average value \$14.01. The spring pigs, born in 1910, numbered 131,890, and their average value was reported as \$2.70.

The total number of sheep and lambs reported for 1910 was 289,354. Of these, 183,752 were mature ewes born before 1910, and their total value was \$92,000, or an average of \$4.86. This total value was nearly three-fourths of the total value of all sheep and lambs. Rams and wethers numbered 54,023, and the average value was \$4.52. Spring lambs were 51,579 in number, and their average value was given as \$1.91. The number of spring lambs was 28.1 per cent of the number of ewes. These were 1,051 goats and kids reported, having an average value of \$5.24.

The total number of mules of all ages in 1910 was 7,694, which is 1.2 per cent of the number of horses and colts. Of these, adult mules born before 1909 numbered 7,159, and their average value was \$155.46. Only 425 mule colts born in 1910 were reported, having an average value of \$76.19, and 110 spring colts, with an average value of \$41.18. There were 134 asses and burros reported, with a total value of \$22,900, and their average value was \$171.19.

Poultry Statistics

The summary on poultry shows that the total number of farms reporting the different kinds in 1910 was 61,532, the total number of fowls being 3,268,109, and the total value \$1,485,000.

Of the total number of farms reporting poultry, 61,532, nearly all, or 61,452, reported chickens, numbering 3,095,026, valued at \$1,328,000; 14,640 reported turkeys, numbering 61,621, valued at \$84,400; 10,131 reported ducks, numbering 39,938, valued at \$26,700; 8,009 reported geese, numbering 30,456, valued at \$38,900; 857 reported guinea fowls, numbering 2,666, valued at \$1,521; 2,181 reported pigeons, numbering 38,360, valued at

\$5,958; and 17 reported peafowls, numbering 41, valued at \$173.

Of the whole number of farms in the state, those returning chickens formed 82.9 per cent; turkeys, 19.7 per cent; ducks, 17.7 per cent; geese, 10.8 per cent; pigeons, 2.9 per cent; guinea fowls, 1.2 per cent, and peafowls, less than one-tenth of 1 per cent. The reported increase in the value of poultry on North Dakota farms in the 10 years, 1900 to 1910, was 211.2 per cent; the increase in the total number of fowls, 119.4 per cent. The number of farms reporting poultry increased 27,068, and the number of fowls per farm reporting increased from 43 to 53.

Number and Value of Colonies of Bees

The number of farms reporting bees increased from 30 in 1900 to 79 in 1910, or 163.3 per cent. The colonies of bees on hand in 1910 showed an increase from 279 in 1900 to 495, or 77.4 per cent, and the value increased from \$1,474 in 1900 to \$3,086 in 1910, or 109.4 per cent.

The actual and relative number of farms reporting bees, together with the number of colonies and the value, increased materially during the decade.

INTERNATIONAL DAIRY SHOW CATTLE PREMIUM LIST READY FOR DISTRIBUTION

The Cattle Premium list of the International Dairy Show has just come from the printer, and is being mailed to breeders and exhibitors as rapidly as possible.

A fact of interest to the exhibitors is the amount which will be given in premiums and prizes. The total amount in money figures up to practically \$10,000, being twice as much as ever given by any former dairy show. In addition to the prize money, there are a half dozen solid silver cups, medals, etc.

From present indications the capacity of the cattle department will be taxed. The problem of securing adequate ventilation for the livestock department has been solved by Prof. King, University of Wisconsin, and work of installing forced ventilation apparatus will be begun shortly.

The floor plans for machinery exhibits will be ready for distribution in a few weeks, and manufacturers of dairy machinery are already asking for information regarding space, terms, etc.

Cattle premiums lists and floor plans for machinery exhibitors may be obtained by writing direct to the International Dairy Show Association, 71 Sentinel Building, Milwaukee.

(Continued from Page 13)

contained in a bulletin "Briquetting Tests of Lignite," just issued by the bureau of mines. The author, Charles L. Wright, says: "The results of the briquetting investigations conducted by the government are expected to prove of considerable value, not only to the government itself as the owner of extensive lignite deposits and the largest single purchaser of fuel, but also to the people in the regions where lignite is found. The problem of a fuel supply in those regions is of peculiar interest, for many of the lignite deposits are situated long distances from fields of high grade coal. The problem assumes still larger proportions when one realizes that the development of manufacturing industries in those regions depends upon the ability to obtain a cheap and satisfactory fuel."

Mr. Wright gives an approximate cost of briquets, loaded on cars, from a briquet plant located at the mines, at \$2.51 in Texas, \$3.53 in North Dakota, and in California as \$5.24. This applies to briquetting run-of-mine lignite to improve its heat value and weather resisting properties rather than to briquetting slack or waste coal. It is believed it will be possible to make briquets from the waste coal which will reduce the cost materially.

A MILLION POPULATION IN 1915

The plan of the state federation of commercial clubs, says the Grand Forks Evening Times, deserves the enthusiastic support of every loyal North Dakotan. The slogan of the federation of a million people for North Dakota in 1915, while seemingly utopian, is not impossible. We already have half that number and by a long pull, a strong pull and a pull altogether, we should land that many in the next three and a half years.

This is pre-eminently an era of farm movement. The landless man is seeking the manless land. The ever increasing value of farm lands in the older states, as well as the overcrowding in the cities, is driving the enterprising people to new homes, where better opportunities are found. Cheap land has caught many, while lurid advertising and overdrawn statements have taken many of this homeseeking army to other sections. The reaction has already set in and thoughtful homeseekers are now looking for opportunities where the making of a living and the saving of a competence for old age are possible without the uncertainties of the overpictured regions or the gamble of profits from cheap land. North Dakota offers just the conditions which this conservative class desires,

and when our opportunities are called to their attention and this introduction is followed up by a campaign of education as is proposed by the federated clubs, the prospective settler is interested and later convinced. The result is that he turns aside from the get-rich-quick sections and settles in North Dakota where a few years of sturdy industry will make him comparatively rich.

And we need a half million more people. When there is a prosperous family on every half section, there will be more business and more prosperity. When every quarter of our great western area is under cultivation, there will be a corresponding increase in our state prosperity. There will be more towns, more merchants, more banks and more money.

That is the condition which the federated clubs propose to bring about and if those charged with the responsibility accomplish half of what they have set out to do, they will have done the state a service which cannot be measured in dollars and cents.

GREAT NORTHERN GETS OUT BOOK

Bulletin Telling of the Advantages of North Dakota as Farming State is Just Out

That the Great Northern railway officials have faith in North Dakota is evidenced by the fact that they have just issued a 40-page bulletin, setting forth all the advantages of the state and telling why it is a good place to live. "Where wheat is king" is the manner in which the cover describes the state, and it then proceeds to take up every section of the state touched by the railroad. It tells of the opportunities the state offers for making a living, sets forth its physical advantages, its educational advantages and takes up a number of the individual counties, setting forth their different advantages.

The company has had a large number of these bulletins printed, and they ask that any residents of the state who want friends in other sections of the country to know about North Dakota, to send in their names and addresses and the bulletin will be mailed to them, free of charge. The company states that they have found that a large percentage of the people who move to the northwest do so because they have received favorable reports from their friends, and they believe that their North Dakota bulletin will supplement the letters of resident residents of the state have written or are planning on writing.

A correspondent-representative wanted in every county. Write for terms.

Poultry Department

Geo. Hausmann, Hillsboro, N. D.

POULTRY NOTES

Grit to the fowl is what teeth are to the ruminating animal, a necessity.

A cornsheller is not essential. The hens will do their own shelling if you throw out the ears in short, broken pieces.

Let the fowls have as wide range as possible, but if they must be confined give them plenty of shade and dig up the ground frequently.

Young geese do not lay as many fertile eggs or produce as many goslings in the first breeding season as they do in the second.

Fresh air and sunshine are the best disinfectants that the poultry raiser has at his disposal, and ought to be more often used in his work.

A plat of ground 50 feet square divided into two lots will be ample accommodation for 25 fowls. Confine them in one lot for a week at a time, meanwhile spading up the other.

The well-hatched chicks in the carefully-cared-for brooder will amount to little unless the food is supplied in proper amounts and at right intervals.

More harm results to flocks during the summer months than at any other time owing to the neglect of their owners, not keeping the house and bodies of the birds clean.

Prices of grain feeds are high and the poultryman must watch his feeding closely. Feeding has become a science, and costs are now figured to fractions of a cent.

The Indian Runner ducks are not very good sitters, altho they are often inclined to incubate. Their eggs are generally put into incubators or under hens for hatching.

Always handle ducks and geese by their necks, and never by the legs, as fowls are handled, for their limbs are not strong enough to serve as handles and will readily break.

KEEPING THE GOOD HENS

The hen that makes a good record for herself in eggs for the whole year is the hen to keep. If she should continue to lay more or less during the molt she is doing an unusual thing, and should be looked to for a breeder, for she may be able to hand down to posterity some of this thrift.

If we were all able to know our best layers or breeders it would have a great influence on the increase in the

number of eggs obtained thru the year. The egg-producing qualities of the hen, like the butter-making qualities of the cow, will determine the hen's value at the end of the year. A hen that runs to meat may lay steadily for a week in the spring and summer, and then go on a vacation for the balance of the year.

Such hens pay if put on the market, but to keep them for the production of eggs is not profitable poultry-keeping. They are too long on feed that costs money without returning anything. Another mistake frequently made is the disposing of the most thrifty pullets. Buyers want the best if they can get them, and these are the ones they will take if you allow them to pick them out.

There is only one time when a poultryman is justified in selling a good pullet, and that is when he is going out of the business.

WHEAT FOR LAYING HENS

Many people do not feed their hens wheat simply because it is higher in price than oats and corn. The feeding of high-priced feed to laying hens may or may not be profitable, according to the man, his methods and his flock. However, there are few other general feeds for laying hens better than wheat. With a good flock of well taken care of otherwise wheat can be fed with profit.

This grain at 90 cents a bushel is 1½ cents a pound, and with good methods a pound of wheat ought to produce at least two eggs, which at the average market prices would be more than double the cost of wheat. Profits in egg production do not depend so much on the cost of feed as upon the amount of eggs a given food will produce under normal conditions.

Wheat is proportionately rich in protein and mineral matter for the formation of eggs, and also for producing heat and energy. Wheat fed to hens should be scattered in a deep litter of straw, so that they must exercise in securing it, and so they will not eat too fast.

Dry grain feed for fowls is to be recommended instead of soft feeds, for the simple reason that the birds have very strong grinding organs for reducing hard feeds. The function of

the gizzard is for hard grinding, and it seems that the harder the foods are the more active the organs become and the healthier and more productive the fowl is.

A NORTH DAKOTA WOMAN'S EXPERIENCE

By Miss Maude Mathews

(Concluded)

Grain should be fed morning and night. Scatter it well into the litter so the chickens will get the necessary exercise by scratching and hunting for the grain.

I know of nothing better to make the hen work than green cut bone scattered over the litter, but that we cannot always have.

Wheat is probably the best all around grain we have.

Oats is a very good grain for egg production but must not be fed too much alone. It is said a hen can starve to death upon oats. It makes an excellent summer grain and can be fed much in winter but it is necessary to furnish the heat by feeding corn or barley. On cold nights nothing is better than a feed of whole corn. If warmed all the better, and the grinding of that corn during the cold night keeps up the heat of the body. If the morning grain could be fed warm on these below-zero mornings it is more economical to do so. During the summer the hen picks up grass and greens, also bugs. These we must supply if we wish a full egg basket.

Cooked Clover and Alfalfa

Vegetables, raw or cooked, clover or alfalfa hay or leaves which may be found in the mangers of the barn or dried lawn clippings or sprouted oats may be used for the green food. Many farmers hunt rabbits. I have heard of these being fed to poultry. Often on the farm an accident happens to a horse or cow. These could be kept in winter and used to furnish the meat ration by hanging a piece up for the chickens to pick at.

At butchering time the blood could be saved and even the bloody water from the washing of meats or dressed poultry may be used with the mash or as a drink.

Separated milk is one of the best feeds we can give our chickens. I said feed, altho it is liquid it will not take the place of water. Milk is rich in protein, hence a desirable addition to our foods.

Cut Bone Best

Green cut bone is probably the best of all if fed fresh but that is beyond the reach of most farmers, as the town people take about all the butchers have. The commercial beef scraps,

which retails at the feed stores from \$2.75 to \$3.50 per 100 pounds, is probably the easiest to procure and handle. Be sure to get the best grade, for much injury may be done by feeding poor beef scraps or old bone. Be sure all your feeds are free from mold or taint. Just as you like a variety, so does the hen, and she is often just like women in that she needs something to tempt her appetite. So don't feed one grain exclusively. Sometimes if fed a mixture of grains at one time, the hen only picks the more tempting ones so I like to feed one meal of one variety and the other grains at another meal and so none of the grain is so apt to be left as if fed several kinds at once.

Little Dorothy came in bringing a soft shelled egg and exclaimed to grandma: "Just look, the old hen could not find a shell to lay it in, so she laid it in a sack." We must furnish the shell for the hen to lay her egg in. Several of the grains, clover and cut bone all contain lime but the city poultryman also furnishes oyster shell for his hens. We must furnish the grit to grind her grain. In summer she can find some herself but not so in winter. Oyster shells are soluble so do not take the place of grit. Gravel stones or coal ashes where the hen can get them will act as teeth to grind her grain but many provide the commercial grit which costs me about \$1 per 100 pounds laid down at our depot.

No Set Rule

Not set rule can be given for amount of grain to be fed. The birds must be watched to see if they go to bed with a full crop. Pick them up occasionally and see if they are too fat. If so, feed less corn and barley and more oats and if too thin give more of the fattening foods.

I like to feed plenty at night so there is a little left in the litter so the hens will start at work as soon as it is light.

We see so many systems advertised now in the magazines as well as the poultry and farm papers. Without doubt all of these have merit, but do not think you can at once, if ever, make the money Philo claims he does or that Kellarstrass says he made from 30 hens.

Both these men sell their eggs for prices that few of us ever hope to equal and that is how they realize such sums from so few hens. Every egg from those thirty hens brought Kellarstrass \$2 each and I believe he claims the hens were fed mostly upon the table scrap left from a family of

A correspondent-representative wanted in every county. Write for terms.

six. I guess he didn't have a dog to feed. Both of these men have spent large sums in advertising and that is the way they have created a demand for eggs at such fancy prices.

S. C. Buff Orpington S. C. Black Orpington

M. Bronze Turkeys, M. Pekins Ducks and Indian Runner Ducks.

"THE BEST IN THE WEST"

Maude I. Matthews, Box 579

Larimore

N. Dak.

BARRED ROCK

Choice Stock and Fair Treatment.

ROBERT B. REED

Box 2.

Amenia, N. D.

BUFF WYANDOTTE EGGS for hatching. Fowls for sale. Also twelve breeds of Fancy Pigeons. M. B. NOBLE, Hillsboro, N. Dak.

PETERSON'S BARRED ROCK
Bred to Lay and Win. Won over 90 prizes. Eggs from utility stock \$5.00 per 50 \$8.00 per 100. Mating list free. PETERSON BROS. Harwood, N. D.

HAUSMANN POULTRY FARM
Breeders of W. Wyandottes and S. C. W. Leghorns
Hillsboro, - North Dakota

PURE WHITE WYANDOTTE EGGS for hatching \$1.50 for 15, \$7.00 for 100, \$14.00 for 220. E. A. Tow, Lisbon, N. Dak.

S. C. W. LEGHORNS

Prize winners' stock for sale. Eggs a specialty. GEO. A. FOWLER, Box 486, Casselton, N. D.

SILVER LACED WYANDOTTES

Thoroughbred, Wide Open Laced, Big Utility Birds, Bred for Business. Tested Fertile Eggs for Hatching, 15 \$1.50; 30 \$2.75; 45 \$4.00; 100 \$8.00. Satisfaction Guaranteed.

Anthony Elm, Lansford, N. D.

WHITE WYANDOTTE eggs for sale from good stock.

M. C. JAMES, Valley City, N. D.

POULTRY BRED FOR LAYING

See my big circular before you place that order for eggs. It will please you. It's free, 2 cent stamp for mailing. Mrs. B. F. Wilcoxon, Hillsdale, Wyo. Dept. 5.

WHITE AND BUFF WYANDOTTES that always win. Choice stock for sale. EGGS for hatching from pens of well-selected stock, sure to produce winners. Prices reasonable. Satisfaction absolutely guaranteed. Write me your wants. L. O. CUMMINS, Casselton, North Dakota

FOR SALE. M. B. Turkey Toms, raised from our Diploma Stock, \$5.00 and up; also Eggs from 26 varieties poultry. Catalog free. L. GULDEN, Osakis, Minn.

Rose Comb Black Minorcas

Eggs for sale, \$2 for 15 eggs.

C. WYSH, CASSELTON, N. D.

PURE BRED WHITE PLYMOUTH ROCKS Eggs at \$1.50 per 15, \$8.00 per 100. Eggs from R. C. Brown Leghorns at \$1.25 per 15. \$7.00 per 100. Eggs strictly fresh and fertile. L. G. Gemmill, Edinburg, N. D.

Philo System Good

There is much in the Philo system to commend it, especially to town people. It is a system where a small number of hens, six in number, are kept in a house 3 by 6 feet and four feet high at the highest. A few eggs incubated are at a time. Great care and cleanliness are necessary for the fowls are never let out of their houses. It is an accepted fact that hens confined and well fed, with sufficient room lay more eggs in a year than those that run at large most of the time.

Some of the secrets of feed at 8 to 15 cents per bushel are the fermented oats or barley, where a bushel of dry grain will make four bushels of green food. Oats or barley soaked in luke warm water for twenty-four hours, then put with a box or tray where the water will drain off, sprinkled two or three times a day with warm or hot water, in about ten days, when the sprouts are about four inches long, will be ready to feed. They do make a splendid feed.

Cut Clover Cheap Food

Another cheap food secret is the steaming of cut clover over night by covering with boiling water and covering pail over and then mixing up stiff with bran.

By writing to the secretary of agriculture the farmer can procure many valuable circulars in regard to poultry as well as other subjects and these do not cost \$1 each as these secrets or systems do.

A few don'ts now:

Don't expect that blue ribbon cockerel to be sold for a dollar. Sometimes over a hundred birds are necessary to find such a bird.

Don't expect every egg you buy to hatch. Yours do not and a journey by express is often hard upon the eggs.

Don't fail to keep all purchased eggs twenty-four hours before you set to allow the eggs a chance to rest. Your hatch will be better.

Don't brand the poultryman a fraud if some eggs hatch out as mongrels.

Common Eggs Substituted

The eggs are often stolen during the trip and common ones put in. Write the party in a nice way and usually he will do the right thing. I had five valuable hens stolen last winter while in the express company's hands. Fifty birds were shipped and I received 46. Another time 19 were sent me and I received 18. The express company paid me for the five birds at the valuation placed upon them in shipmen.

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

NORTH DAKOTA CHICKENS**Harvard Graduate From East Didn't Know They Raised Such Things There**

"These from North Dakota?" exclaimed a member of an Eastern Harvard club recently at the banquet to the Associated Clubs of America, held at St. Paul. He was eating a broiled chicken weighing just a pound, hatched and raised in North Dakota.

"I have always been told it is the most difficult thing in the world to raise chickens in North Dakota," continued the Easterner.

Whether difficult or not, the 400 chickens served at that banquet all came from North Dakota, and from a farm managed from an office building in St. Paul. It is the largest farm of its sort in the Northwest, and in many ways the only one of the sort in the country.

The farm, or farms, for it is divided into several sections, is located at and near Marion, a town of 400 persons, on the Northern Pacific, seventy miles southwest of Fargo. It is owned and run by the Johnston Stock and Farming company, of which A. D. S. Johnston of St. Paul is sole owner.

Two parts of this mammoth farm are managed directly by Mr. Johnston. Taking care of the balance of the farm there are eight families renting the land on shares, each tenant supplied with a comfortable house and the necessary barns and out-buildings. The farm, on which the chickens are raised and on which thousands of tubs of butter for fancy trade in this city are made each year, is about six miles from Marion.

In charge of the poultry department is a superintendent who was educated for the chicken-raising business at Cornell university and after several years of experience was sent to North Dakota, where this spring he has just finished hatching in one giant incubator 34,165 chickens.

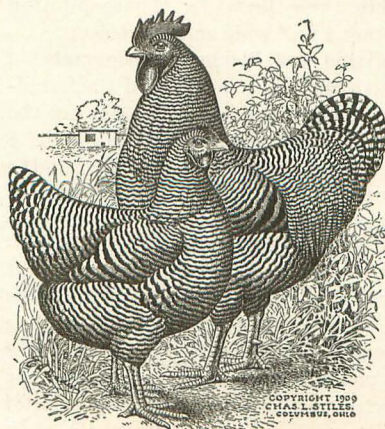
Hatching 100 chickens in an incubator is no easy task, as many a farmer's wife can testify, and when it comes to attending to 34,000 chicks there is plenty of work for a dozen men. The chickens on this North Dakota farm are hatched in an incubator heated by hot water and equipped with all the latest improvements in apparatus for regulating temperature. To take care of so many chickens at one time would be too much of a job, so several thousand eggs are put in the incubator three or four days apart. The period for hatching for the entire flock is extended over considerable time.

When they are hatched, they are not turned out on the Dakota prairie to shift for themselves, not these chicks. They will be worth 50 cents a pound in a short time, and they are pampered and fed on the daintiest of chicken dainties until their meat is as tender as any flesh ever served on any table in the land. These chickens and the older ones, which are laying 2,000 eggs a day, have a bill of fare containing eighteen items.

Not all the bill of fare is served each meal, nor do the chickens have opportunity to select. The Cornell graduate, Gustave Walters, does that. He knows what is good for chickens, whether they should have a little salt, ground oyster shell and bran, or whether cracked oats and gravel is the best combination. On the daily record sheets showing the performance of the chicken department the amount of feed taken from the farm supply, or bought, the number of eggs gathered and on hand, together with other information, are all reported to the head office in St. Paul as accurately as a train dispatcher reports the trains of the Great Northern.

A correspondent-representative wanted in every county. Write for terms.

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.



Harty's Barred and White Plymouth Rocks

Stock for Sale

A fine selection of early hatched chicks--trios, pens or single birds.

H. C. HARTY,

Omamee, North Dakota

Home Department

CONCRETE CISTERNS ON TOP OF GROUND

Provide Country Houses with City Conveniences

An abundance of soft water is a great aid in solving the labor problem of house-keeping. With the general use of concrete there has developed a new style of cistern which further lightens the work of the housewife. This new concrete cistern is built on top of the ground and, by direct pressure, forces the water thru pipes into the house and does away with the work and exposure of pumping and carrying water. The piping of the water allows the cistern to be located to the best advantage. Since the roof water from out buildings is free from

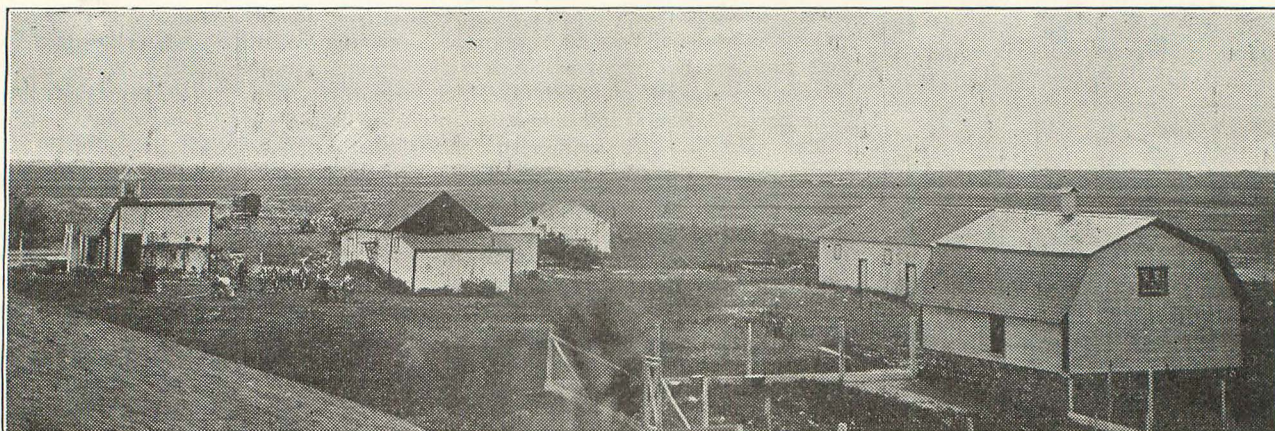
to hold the siding in place, tack it lightly to the studding. Board up the outside form only to height of 3 feet, so as to make easier the handling of the concrete and the placing of the reinforcing rods. Build each side separately in order that the entire form may be quickly erected. See that the forms are joined in such a way as to make their removal an easy matter when surrounded by the solid concrete.

From the site of the cistern strip off the sod and other foreign matter. Do not disturb the solid ground. Three to four feet below ground level (depending upon the depth of freezing), lay a 2-inch house-supply pipe and have the cistern end fitted with a pipe connection,

To take care of the water pressure, reinforcing rods must be run in both directions thru the concrete wall. For this purpose, use three-eighth-inch rods 10 feet long. While the concrete in the foundation walls is yet soft, set the vertical rods in it (spaced 8 inches) to the depth of 1 foot. Carefully place these rods so as to bring them within 1 inch of the outside of the cistern walls.

Next in order is the concrete floor. Make it 6 inches thick and tamp the concrete well. See that it overlaps the inside of the foundation wall and that the top of the pipe connection is at the level. Finish the surface with a steel trowel.

After the floor has hardened for 3 or 4 hours, erect the inside form. To aid in taking down these forms, place removable wedges between the ends of the studs and the floor. Before setting up the outside form, fasten the first four horizontal rods to the vertical reinforcing by means of small wire. These rods are spaced 8 inches apart. The ends



Farm Buildings of Frank Peltier Near Dunseith

soot and other impurities, many persons prefer to build the cistern at the barn, granary, or corn crib. The carrying of water is thus reduced to the mere matter of turning a faucet in the kitchen.

The Forms and Foundations

To illustrate the general method of construction, consider a cistern 8 by 8 feet square in the clear and 8 feet high with 6-inch side walls and floor and 4-inch roof. Such a cistern holds 121 barrels of water.

The first step in building a cistern is to have all materials on hand before beginning the work. Make the forms or molds of 1-inch siding on 2 by 4-inch studding spaced 2 feet. Remember that the siding always goes next to the concrete. Since the floor is 6 inches and the roof 4 inches thick, have the studs for the outside form not less than 8 feet 10 inches in length. The uprights for the inside form must be exactly 8 feet long. As the pressure of the concrete will tend

set at the concrete floor level and 1 foot from the cistern wall. Carefully imbed in concrete to the first joint beyond the cistern wall. Thoroughly tamp back the earth removed, so that there can be no settlement underneath the cistern floor. Lay out the cistern 9 by 9 feet, out to out. Within these lines dig the foundation trenches 1 foot wide and 3 feet deep.

Mixing and Placing the Concrete

With the forms ready and the foundation trenches dug, begin mixing the concrete. Proportion the concrete 1 part Portland cement to 2 parts sand to 4 parts crushed rock. Four parts of clean bank-run gravel may be used instead of the sand and stone. In measuring the materials do not guess or count shovelfuls. Measure exact by means of a bottomless box, and count one bag of cement equal to 1 cubic foot. Mix the concrete mushy wet and fill the trenches to a level with the under side of the cistern floor.

must be bent and spliced around the corners of the cistern. Set the outside form and begin building the concrete side walls. Use the concrete mushy wet and work it down next to the wall form with a wooden paddle. Place it in 8-inch layers carried around the entire cistern. See that exactly 1 inch of concrete is between the steel reinforcing and the outside form. As the work progresses, add the necessary boards of the outside form and the lengthwise reinforcing rods. Do not stop placing concrete until the walls are finished.

The Concrete Roof

While the 4-inch concrete roof is hardening, a temporary wooden platform is needed to support it. Build this platform of 1-inch boards nailed lightly to 2 by 4-inch joists. Let these joists

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

rest on 2 by 4-inch stringers nailed to the studding of the inside form at a distance of 4 inches below their tops, so that when the stringers are loosened the platform will come down. To keep the mushy concrete from wasting, place heavy paper or thin cloth at the edges of the platform. For providing a man-hole opening, take 1-inch boards 5 inches wide and build a bottomless frame 4 inches deep, 2 feet square at the top and 18 inches square at the bottom—outside measurements; or have the tinsmith make a round bottomless dish-pan of the same dimensions at the top and bottom. Grease the manhole frame and set it on the platform where the opening is desired. For the down-spout from the roof, make an opening by similar use of a round wooden plug or a short section of drain tile or sewer pipe, which may be left in the roof.

Over the entire platform spread 1 inch of concrete. Quickly place the reinforcing of three-eighths-inch steel rods running in both directions (criss-cross) and spaced 1 foot apart. Bend the ends to a hook shape and fasten them to the rods in the side walls. Immediately tamp in the remaining 3 inches of concrete. Increase the thickness to 3 1/4 inches at the center so as to shed the roof water. Finish the surface with a steel trowel. If the tin man-hole frame is to be used, grease it, set it in place and build the cover along with the rest of the roof. Reinforce the cover with short lengths of rods laid criss-cross and within 1 inch of the bottom. As lifting rings, use two halves of an old bridle bit or two hitching post rings, the ends provided with knobs of twisted wire or with nuts and large washers for holding the bolts firmly in the concrete. If the wooden manhole form is used, carefully remove it after 5 hours. After 3 days build the manhole cover the same as for the tin form, with this exception—place greased paper around the edges to prevent the new concrete from sticking to that of the platform. When the cistern roof is 3 weeks old, lift off the manhole cover and saw an opening in the wooden platform. Descend, loosen the wedges under the studs and the stringers supporting the platform, remove the forms and pass them out thru the opening. To keep the settlings out of the house pipe, screw a 4-inch length of pipe into the joint coupling. Furthermore, the downspout should be provided with a cut-off, so that the first flow from the roof of the building may be kept out of the cistern. The cistern may be used for water storage after it is 1 month old.

Below is given the bill of materials and a liberal estimate of their cost. By consulting local dealers, it may be found that the cost can be reduced.

Materials Required

Crush'd rock, 12 cu. yd. at \$1.10, \$13.20

Sand, 6 cubic yards at \$1.00, 6.00
Portland cement, 21 bbls. at \$2.50 52.50
Reinforcement (112 rds—three-eighths inch by 10 ft.) 420 lbs.
at \$.02..... 9.45

\$81.15

1. ornamental features are desired, moldings or tile decorations may be used. The point to bear in mind is, that an inexpensive cistern located on top of the ground provides the country house with the conveniences of a costly city waterworks.

THE VALUE OF GROSBEAKS TO AGRICULTURE

The grosbeak is a very much maligned bird and instead of being destructive to crops he is, on the contrary, of great benefit, according to Farmers' Bulletin 456, just issued by Secretary Wilson. The bulletin states that seven kinds of finches, commonly known as the grosbeak, summer within our boundaries, and they deserve to be widely known in order that their services may be appreciated. The grosbeaks are easily distinguished from other finches by their stout form, bright plumage, massive bills, and melodious voices. Two of them live mainly in cold, mountainous areas and have little to do with farms or with the insects that prey upon crops, and these may be dismissed without further notice. The other five live largely in agricultural regions and secure most of their food about cultivated

lands. They perform invaluable service in destroying certain of our worst insect pests.

The rose-breasted species is a great destroyer of the potato bug. He breeds over Kansas and the mountains of Tennessee. The investigations of the Department show that the bird is fond of green peas, but invariably consumes enough injurious insects to more than offset the damage. He has become famous for his preying on the Colorado potato beetle and no less than one-tenth of the total food it consumes has been proven to be the potato beetle. It attacks the cucumber beetle. It has proven an active enemy of the Rocky Mountain locust during that insect's ruinous invasions, and among the other pests it consumes are the spring and fall cankerworms, orchard and forest tent caterpillars, tussock, gipsy, and brown tail moths, plum curculio, army worm, and chinch bug. In fact, states the bulletin, it attacks the worst enemies of agriculture.

The cardinal or redbird species ranges from southern Mexico, lower California, and Arizona north to Iowa and Ontario, and east to the Atlantic coast. They are permanent residents, spending the summer and winter in the same locality. It has been claimed that they

ALFALFA LAND
26,000 ACRES
of the finest Alfalfa
Land on earth.
Located in McHenry County, N. Dakota. Sub-irrigated. Pure water. Good railroads. Splendid markets. Any size tracts. Only \$25.00 an acre. Easy terms. **ALFALFA VALLEY LAND CO.,**
532 Pioneer Press Building, Saint Paul, Minnesota.

One Thousand Recipes

FOR NORTH DAKOTANS BY

One Hundred North Dakota Housewives

A North Dakota COOK BOOK

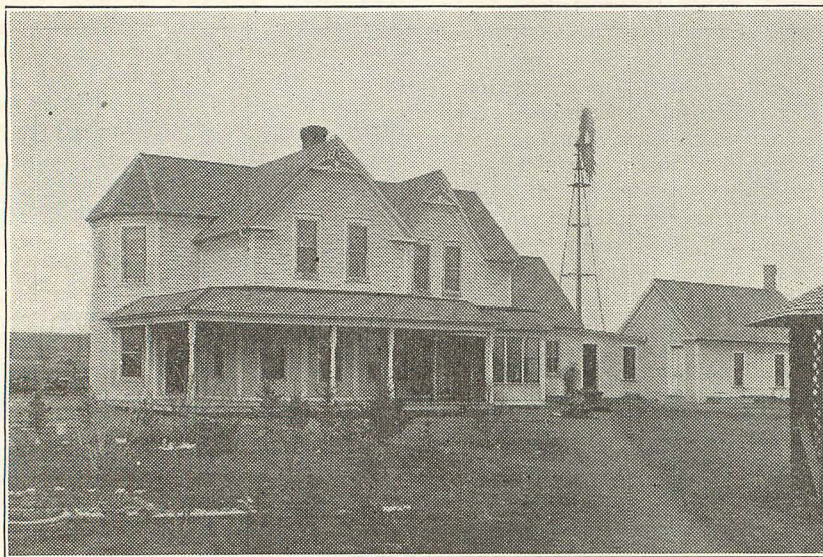
Why purchase a "White House" Cook Book for a North Dakota Home? These recipes have all been carefully and thoroly tested by North Dakotans and the sterner sex have pronounced them the "best ever" compiled for hungry mortals.

Price postpaid, 50 cents.

NORTH DAKOTA FARMER, Lisbon

pull sprouting grain, but no evidence of damage to either grain or other crops is shown from over 500 examinations. On the contrary they do much good. They feed on locusts, periodical cicada, the Colorado potato beetle, the rose chafer, cotton worm, plum or cherry scale, the zebra caterpillar of the cabbage, the cucumber beetles, billbugs, locust flea-beetle, corn-ear worm, cotton cutworm, southern figeater, codling moth, and boll weevil, and, in addition, are great consumers of injurious weed seeds.

The black-headed grosbeak hails from southern Mexico and invades North Dakota and Nebraska. It fills the same place in the West that the rose-breast does in the East. It is a foe to the worst pests of horticulture, the scale insect composing a fourth of its food.



Residence of Wm. Gottbreht, near Dunseith

The blue grosbeak breeds over the southern two-thirds of the United States and is greatly destructive to weevils, grasshoppers, locusts, caterpillars, and worms.

The gray grosbeak inhabits Texas, Arizona, and New Mexico. It is a consistent enemy of the boll weevil and cotton worm. It also consumes great quantities of harmful weed seeds.

The bulletin winds up with a plea for the protection of the grosbeak, and says: "Present investigations prove that the services of the grosbeak in destroying insect pests are invaluable. Each kind pays especial attention to certain pests which if unchecked would cause enormous loss. Few of our birds are to be credited with more good and with fewer evils than the grosbeak and none more clearly deserves protection by the practical farmer."

A correspondent-representative wanted in every county. Write for terms.

FROM THE CITY TO THE FARM

The cry of the land-hungry is heard everywhere. During the last few years desirable farm land has increased in value so enormously that the man of small means finds it more and more difficult to secure a home. The congestion of population in our large cities already furnishes an economic and social problem of serious import.

Recognizing its obvious duty to create additional opportunities for homeseekers, the Federal Government thru its Reclamation Service at Washington, for several years has been expending millions of dollars in the construction of irrigation works to reclaim vast areas of the arid West, much of which is yet the public domain. On several of the large projects the water is

"made good." Notwithstanding a lack of knowledge of farming and a total unfamiliarity with conditions in an irrigated country, the percentage of failures is very small. The question, "Can a merchant, mechanic, lawyer, doctor, or men of other professions, succeed as farmers in the West?" has been answered. Given good health, a small capital to make a start, and a willingness to work hard, and the answer in most cases is "Yes."

The exodus to the West shows no diminution as the years go by. On the contrary the movement of settlers this summer promises to be the greatest within several years.

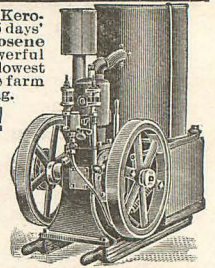
Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.

Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil.



Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write! Detroit Engine Works 385 Bellevue Ave., Detroit, Mich.

HONEY Well ripened clover Honey for Sale, guaranteed absolutely pure and of the finest quality. One 30-lb. can 11 1/2c per lb.; 2 or more cans 11c; 12-lb. cans, in full cases of 72 lbs., 11 1/2c per lb. Send for price list. Address

M. V. FACEY, Preston, Fillmore Co., Minn

Bees on the Farm "Gleanings in Bee Culture" will help you get more pleasure and more profit from Bee keeping, 6 months' trial subscription 25c. Book on Bees and Catalog of Supplies sent free. The A. I. Root Company, Box 78, Medina, Ohio

AIR RIFLE

TELESCOPE OVER RINGS

WATCH

EVERYBODY'S SAFETY RAZOR

EASY TO EARN You choose of 150 premiums for selling our **Keystone Easy-to-Thread Best Quality GOLD EYE NEEDLES** at 5c a package. With every two packages we give **FREE** Silver Aluminum Thimble. Send name and address. We send, postpaid, 24 needle packages and 12 thimbles with **LARGE PREMIUM BOOK**. When sold send us \$1.20 and receive premium entitled to selected from premium list. Extra premium **FREE** if ordered today. Address **Keystone Novelty Co., Box 7 to Greenville, Pa.**

PRINTING PRESS

CAMERA AND OUTFIT

FOUNTAIN PEN

FOOTBALL

Are you boosting the North Dakota Farmer? One Year, 50 cents; three years, \$1.00.

PRIZES FOR GRAIN

Commissioner Gilbreath Offers \$475
for Choice Samples

The agricultural department of the state of North Dakota offers the following cash prizes for the largest and best collection of grains and grasses raised in any one county during the year 1911:

First prize.....	\$125.00
Second prize.....	100.00
Third prize.....	75.00
Fourth prize.....	50.00
Fifth prize.....	30.00
Sixth prize.....	25.00
Seventh prize.....	20.00
Eighth prize.....	15.00
Ninth prize.....	12.50
Tenth prize.....	10.00
Eleventh prize.....	7.50
Twelfth prize.....	5.00

Total prizes.....\$475.00

All entries must be made and exhibits received on or before August 31, 1911.

The quantity of each sample of the grain sent should not be less than one-half the size of the ordinary bundle of grain and should be carefully tied so as to prevent it getting damaged. There should be a full bundle of flax, alfalfa and clover.

These grains and grasses should be carefully packed in large boxes and with sufficient openings to permit of plenty air to circulate thru, so as to prevent the grain from becoming heated or molded while in transit.

The larger the variety the more value is attached to it. Extreme care should be used in selecting, arranging and packing each exhibit.

The department will simply take the exhibit from the boxes and display it, concealing from the judges the name of the contestant and the county in which the exhibit was gathered. It may prove advantageous to the exhibitor to have the wheat, oats, barley, rye, speltz and other grains stripped. This will make the straw brighter and more attractive. Have each bundle securely tied with cord.

All grains and grasses should be shipped by express, so as to prevent the exhibit being kept in the boxes too long, and thus avoid it having a moldy appearance. The department will pay the express charges.

FARMERS' SPECIALS IN OTHER STATES

It is a well known fact that the man who is past the age of twenty-five can rarely be induced to go to school. Recognizing this fact, the railroads of the West, in connection with the agricultural schools, are taking the "College to the farm."

For four years in succession, the Denver & Rio Grande, co-operating with the Colorado and Utah Agricultural Colleges, has operated special trains thru the agricultural districts of Colorado and Utah, and each year with an increasing interest.

In February of this year the Rio Grande, with a corps of professors from the Utah Agricultural College conducted a special train over its lines in Utah, stopping at various points. In all fifty-nine meetings were held, with a total attendance of 18,013 people.

In March, in connection with the Colorado Agricultural College, the Rio Grande operated a special train thru its fertile agricultural districts in Colorado, traveling 1677 miles, holding 39 meetings, with total attendance of 13,614 people.

Already splendid results are shown from the operation of previous trains, and it is anticipated that still greater results will be apparent as time progresses.

POWER OF FARM-BRED BOYS

The farm is the place to give a boy a good start in life. It is there that he learns independence of thought and action. He is not coddled nor helped over the rough places as the city boy is. He is forced to depend upon himself; and at the age when the city boy is tied to a nurse's apron strings, the country lad not only takes care of himself, but often assists materially in the farm work.

He rides horse-back, goes a'field with a team, investigates the habits of birds and animals, acquires a thirst for knowledge.

The city boy moves in grooves that have been cut out for him by custom; he is herded in the city cars; he must follow the crowd in the streets. His vision is bounded by the lines of high buildings; he never sees a sun rise, or set; he is bound down by prejudices; dwarfed by mannerisms and consumed by customs. The farm boy dreams of the outside world which he has never seen, strains at the tether of his humdrum duties and sighs for bigger worlds to conquer. He is fighting battles while pitching hay and manipulating railroads while running the reaper.

When he finally breaks away and comes to the city he is fortified with rugged health, courage and independence; the world looks easy to him. He is often disappointed, but he makes his dreams come true.

He is used to hardships; does not whine when he is knocked down in the strife of the big city; he has learned to depend on his own resources; he has physical power and intellectual elements to win over obstacles that would down the city boy. The country is inspiring;

the city is enervating and surfeiting. The country teaches the boy push and perseverance and determination.

Many of the really big men who dominate the affairs in the big cities came from the farm. It is stated as a fact that 7-10 of the men who control the banks and railroads and other great industries of Chicago, New York and other great centers of business, are farm-bred.

But the demand for good men on the farms is also insistent. Boys who remain in the country and make the most of their opportunities cannot help but succeed in the calling as honorable and useful as any other.

THE MORNING CALL

Ma comes and calls at early dawn,
An' I say: "Yessum."
She calls again and I just yawn
An' answer: "Yessum."
I love to lie just half awake
An' smell the buckwheat battercake,
An' answer: "Yessum."
Again she comes and gives her call,
An' I say: "Yessum,"
Each mornin' it is that there way:
I just say: "Yessum."
I don't git up ner stir at all,
I just say: "Yessum."
And then she hollers: "Willum, you
Have got your mornin' chores to do.
You'll have to hustle to git thru."
An' I say: "Yessum."
She calls an' calls an' I just say:
"I'm comin', yessum;"
Then dad comes an' he hollers
"Bill!"
An' then I stop my lyin' still
An' go to dressin' with a will,
An' holler: "Comin'!"
—Chicago News.

ANTI-FLY PLANS

1. Do not allow any decaying organic material of any sort to accumulate on your premises. Abolish all antiquated sewage systems and install new.
2. If your cellar is damp, clean out the dark corners at frequent intervals and apply lime.
3. Pour kerosene into the drains and also treat with kerosene all waste material not intended for fertilizing purposes.
4. Kitchen waste intended as food for hogs or other animals should be removed and used daily.
5. If kitchen waste is deposited in large cans, it should be collected at least once a week.
7. If inconvenient to haul the manure out at short intervals, screen the pile so as to exclude flies, or treat it with kerosene or lime.
8. Keep up the work of destroying adult flies by the usual methods.

HOME DRESSMAKING



3924.—The plaid gingham dress by this design shown below is as simple as can be and very inexpensive. It was made of black-and-white goods, with green linen for the round yoke facing, the belt and sleeve trimmings. White cotton cord was arranged in loops with the pearl buttons on the front. The making of a little frock by this model is easy, as it is in one piece, including the sleeves. Box-plaits are very becoming in such dresses, and this one closes under the center plait at the back. It may be worn over a white lawn guimpe having long or three-quarter. Silk-faced delaine, challis and colored linen will make attractive dresses by this pattern. Pattern sizes are for 6, 8, 10 and 12 years, the 8-year size requiring five and one-half yards of 27-inch material with one and one-quarter yard of 18-inch contrasting material for trimming.

3983.—What could be easier to make and more effective when finished, than a little frock of embroidered or hem-stitched flouncing by this design. Lawn and challis having a narrow, dainty border may be employed in the same way. Torchon, cluny or valenciennes insertion will add an effective finish with any of these fabrics. Then for sturdy play dresses blue or watermelon pink chambray with a finish of eyelet work bands or flat white braid for square neck, sleeves and belt is as attractive for the purpose as more expensive material. The little body and sleeves caps are cut in one piece, tho the pattern provides for a high neck and for sleeve puffs to be added if long sleeves are desired. Plaits are laid entirely around in the straight skirt which is attached to the body under the belt. Dress 3983 is for 6, 8, 10 and 12 years, the 8-year size requiring 3 yards of 40-inch material. If made as illustrated five and three-quarters yards of flouncing 18 inches deep with 2 yards of banding will be needed for a dress in this size; 30-inch challis will require 4 yards.

Two-toned brown plaid worsted was used for the little dress (3698) which is



worn with a brown patent leather belt, and has brown panne velvet cuffs. It is a one-piece dress, and has box plaits. Pattern sizes are for 2, 4, 6 and 8 years; size 8 requiring one and five-eighths yard of material 48 inches wide. Price 10 cents.



3949.—French challis is an excellent fabric for children's frocks. Blue and white was combined with solid blue in this little square-necked dress. It had short puff sleeves, but the pattern includes long sleeves also, and the skirt is perforated at flounce depth for contrasting material. The straight skirt is plaited and attached to the body under the belt. Linen, chambray, zephyr gauze and soft woolen fabrics are adaptable. Patterns are for 6, 8, 10 and 12 years, and if made as illustrated, the 8-year size requires $2\frac{1}{4}$ yards of figured material 36 inches wide with $1\frac{1}{4}$ yard of contrasting material 27 inches wide.

3987.—A pique coat often provides sufficient protection in Summer to the little wearer of a thin lingerie frock. This is a very appropriate material to use for such coats, as its soft finish keeps it from wrinkling badly and the firm weave is a good medium for hand embroidery or braiding. If hand work requires too much time all-over eyelet work embroidery may be used for the big collar, lapels and cuffs, finishing the edges with bias folds of the pique as shown in the illustration. This double-

breasted pattern has two-seamed sleeves with separate cuffs and is a good one for a child's early Fall coat to wear to school. For the latter purpose French serge, panama, and satin cloth might be employed. Or for a dressy coat ottoman cloth or satin ottoman will give good service and always look well. Fancy braid or black satin are stylish trimmings for navy-blue serge or cloth. Pattern 3987 is for 4, 6, 8 and 10 years, the 8-year size requiring two and three-quarters yards of 36-inch material with 1 yard of eyelet embroidery 18 inches wide for collar, lapels and cuffs.

A dainty party dress (3773) for the little girl is picture at the left in mouseline. This was trimmed with valen-

ciennes lace, insertion and tiny ribbon bows. It has a panel front and a straight gathered skirt attached to the long body with a strip of insertion. A lace trimmed lawn ruffle finishes the lower edge. The dress can be made very attractive by embroidering the front panel in a dainty pattern and using less insertion. Such dresses as this and the preceding one are very attractive over a colored silk slip, which also affords more warmth in the Winter. The patterns are in sizes 2, 4, 6 and 8 years, the 4-year size requiring one and seven-eighths yard of 36-inch material with an extra yard if made with the ruffle.

Seasonable Receipts

Selected from "One Thousand Receipts for North Dakotans"

Chicken Baked in Milk

Cut up chicken as for frying, roll in flour and place in dripping pan or roaster. Season with salt and pepper. Scatter bits of butter plentifully over the chicken and cover with milk which has been heated. Some cream added will make an improvement. Cover and bake until tender, then remove cover and brown nicely. This is delicious.

Chicken Pie

Put chicken in cold water; let simmer until two-thirds done; salt and pepper, and finish cooking. There should be five cupfuls of broth. Remove bones from chicken, put meat in a baking-dish, and set in oven while you prepare gravy. Melt three tablespoonfuls butter, add three tablespoonfuls flour, mix well, add one cupful warm broth and let dissolve well. Then add rest of broth and cook to a smooth sauce; then add one cupful cream or milk, and turn this over meat, boiling hot (reserving some for gravy dish) and put back in oven while you prepare crust.

Crust: Two and one-half cups of flour, one-half teaspoonful salt and two teaspoonfuls baking powder. Mix. Add two tablespoonfuls shortening, one well beaten egg, and one cupful milk. Makes a stiff batter. Drop evenly in spoonfuls on chicken. Bake brown and done.

Beef Balls

Chop fine some cold beef and with this mix one or two well beaten eggs according to quantity of meat. Add a bit of chopped onion and a little melted butter, salt and pepper. Flour your

hands and roll the meat into balls and fry in smoking hot fat.

To Cook Pot Roast

Place roast in kettle with two-thirds cupful vinegar. Let cook slowly in this until cooked dry, turning meat occasionally until roast is well browned. Then pour into stock one-half cupful milk and one-half cupful cream and thicken for gravy. Especially good for meat that may be a trifle tough.

Veal Stew

Put six pounds veal stew in stew pot; add salt, pepper, and butter and water and let stew. When nearly done cut in one-half onion; take out meat and thicken gravy with flour and water.

Meat Loaf

Three pounds round steak, 1 pound salt pork ground together. Add two beaten eggs, salt and pepper, one teaspoonful cloves ground, one grated nutmeg, one cupful bread crumbs, one cupful cream or milk. Mix well with hands, shape in loaf and bake one hour. Spices may be omitted.

Baked Tomatoes

Six medium-sized tomatoes; remove a thin slice from end of each. Take out pulp and drain off most of the liquid. Add to this pulp an equal amount of buttered bread crumbs, season with salt, pepper and a few drops of onion juice. Stir well together and refill tomatoes with this mixture, place them in buttered baking pan, sprinkle with buttered crumbs and bake twenty minutes in hot oven.

Green Lima Beans

Cover one quart shelled beans with boiling water. Place on fire where they will boil up quickly; then draw back where they will simmer until done.

Are you boosting the North Dakota Farmer? One year, 50 cents; three years, \$1.00.

When tender pour off part of the water. Season with one teaspoonful salt and two tablespoonfuls butter.

Baked Cabbage

Shred a small head of cabbage fine, scald. Make a cream sauce by melting one tablespoonful butter and one tablespoonful flour; add one pint milk and season with salt and pepper. Let cook a few minutes and add the cabbage, stirring well. Put a layer into baking dish, sprinkle with bread crumbs and a little grated cheese, then another layer of cabbage and last crumbs and cheese. Dot with bits of butter and bake until brown.

Cream Cabbage

Chop one small head of cabbage. Season with salt, pepper and one-fourth cupful sugar and two tablespoonfuls vinegar. Beat up one cupful cream and add last.

Tomato and Pea Salad

Scoop out skinned tomatoes; fill with cold-boiled peas and English walnuts; mix with salad dressing. Serve on lettuce.

Tasty Salad

For a tasty and sightly salad; cut peeled tomatoes into thick slices; arrange them on lettuce leaves, and spread with mayonnaise mixed with minced green peppers.

Beet Salad in Cups

Boil largest beets you can find; peel them as soon as beets are done. Cut a slice off the top and scoop out the center to form a cup. Chop celery fine, cut cucumbers in dice and use a portion of the chopped beets, mix and fill the beet cups. Put a spoonful of mayonnaise on top. Place the cups on lettuce leaves and serve ice-cold.

French Mustard Dressing

Slice three large onions into one quart of vinegar; let stand three days. Strain into double-boiler; when hot add two tablespoonfuls sugar, one tablespoonful salt, one teaspoonful black pepper; thicken with two tablespoonfuls mustard and one tablespoonful flour. Cook ten minutes and bottle.

Salad Dressing

This salad dressing may be used on vegetables, fruits or meats.

One teaspoonful salt, one teaspoonful mustard, two teaspoonfuls sugar, one scant cupful of vinegar, one tablespoonful butter, three tablespoonfuls cream, four yolks of eggs. Mix and stir over the fire until it begins to thicken; strain. When ready to use, thin with one-half cupful of cream, whipped.

When wishing to keep this salad dressing for some time, I omit the three tablespoonfuls cream and add the cream only when I am ready to use it, usually taking one-half cupful cream to one-half cupful dressing.

Salted Cucumber Pickles

Make a brine of good salt strong

enough to float an egg and then have extra salt in bottom of jar or keg. Wash small cucumbers and place in brine, adding more every morning or when you can get them. Keep under brine with a cover upon which place a rock to hold down. In the winter take up and freshen and fix in any way preferred. These will keep indefinitely.

Olive Oil Pickles

About twenty-five cucumbers sliced across thin, one cupful pure olive oil, five cents white mustard seed, five cents brown mustard seed, one tablespoonful celery seed, one quart cider vinegar. Put layer of cucumber, then layer of seeds and salt and so on until jar is filled; then pour over vinegar and oil.

Cucumber Pickles

Slice unpeeled cucumbers and pack closely in pint jars. Add one level tablespoonful salt, one tablespoonful white mustard seed and cover with cold vinegar; seal. Very small cucumbers, not sliced, but with the ends tipped, may be pickled the same way. Sliced onion may be mixed with the sliced cucumber, and one teaspoonful sugar added.

Pickles

One gallon vinegar, one cupful salt, one cupful mustard (not cooked), one cupful horseradish, chopped fine; put pickles in jar. Pour mixture over them.

The North Dakota Speller

By S. T. Hankins

Two Book Series
FOR SEVENTH & EIGHTH YEARS
(Third Edition)

PRICE POST PAID 15 CENTS
FOR FIFTH AND SIXTH YEARS

PRICE POST PAID 15 CENTS

Price per dozen: \$1.50

To introduce THE NORTH DAKOTA SPELLER, we will send a copy of the FIFTH-SIXTH YEAR and a copy of the SEVENTH-EIGHTH YEAR, post paid, for 25 cents. This may be deducted from amount remitted for first dozen or more ordered.

WESTLAND EDUCATOR
LISBON, NORTH DAKOTA

THE DELICIOUS FLAVOR OF Baker's Breakfast Cocoa



Appeals to the strong and vigorous as well as to those who seek health and strength.

IT IS A PERFECT FOOD DRINK

Registered, U. S. Pat. Off.

53 Highest Awards

Walter Baker & Co. Ltd.
Established 1780. Dorchester, Mass.

LEARN WIRELESS & R. R. TELEGRAPHY!

Shortage of fully 10,000 operators on account of 8-hour law and extensive "wireless" developments. We operate under direct supervision of Telegraph Officials and positively place all students, when qualified. Write for catalogue.

NATIONAL TELEGRAPH INSTITUTE
Cincinnati, Philadelphia,
Memphis, Davenport, Ia.,
Columbia, S. C., Portland, Ore.

Boost your state farm journal—
The North Dakota Farmer.

A NEW CREATION

WEBSTER'S NEW INTERNATIONAL DICTIONARY

The Only New unabridged dictionary in many years. Contains the *pith* and *essence* of an authoritative library. Covers every field of knowledge. An Encyclopedia in a single book.

The Only dictionary with the *New Divided Page*.
400,000 Words. 2700 Pages.
6000 Illustrations. Cost over half a million dollars.

Post yourself on this most remarkable single volume.

Write for sample pages, full particulars, etc.

Name this paper and we will send free a set of Pocket Maps

G. & C. Merriam Co.
Springfield, Mass.

A Premium Worth Having

This awl is one of the handiest tools about the farm. Would you like one without cost? The Regular Price is \$1.00.



There are four ways by which you may own one of these awls: First, Send your renewal and one new subscription with \$1.00. Second, Send two new subscriptions and \$1.00. Third, Send renewal for two years and \$1.00. Fourth, Send \$1.00 and we will renew your subscription and send the North Dakota Farmer for six months to any three persons in this state. The awl will be sent post paid.

Address,

NORTH DAKOTA FARMER, Lisbon, N. D.

Pure Gold, But Not "Yellow"

Ask Your Superintendent or any Progressive Educator Regarding the Merits of

The Rotary, Uncle Will's Magazine
FOUNDED IN 1897

Single Subscriptions, One School Year 50 cents

In Clubs of Five or More to One Person 30 cents

This Magazine has "Plowed its way" into every County of North Dakota and has already entered every state in the Union. This is Why:

It contains as much reading matter during the year as the First, Second, Third and Fourth Readers combined. It is more eagerly read by the pupils than any book. It furnishes choice fresh reading every month. It contains just the selections suggested by the Course of Study. It is classic. Its personality is magnetic.

Our Offer to North Dakota Farmer Readers.

To any School Officer or Teacher mentioning this offer we will give a year's subscription to THE FARMER with every order for a club of five or more Rotaries for one year.

Address,

The Rotary, Lisbon, N. D.



Why "Mound City" House Paint HOLDS Its Gloss

WHY do you see so many dull,
faded-looking houses?

The trouble with such houses is that they are Oil-hungry. They are painted with a paint that has not enough Linseed Oil in it—a paint that never *could* have enough Oil in it on account of the character of the pigments used.

The best Paint *must* do two things. It must preserve and beautify. Do you know that Linseed Oil is *the* great preservative in Paint and that if it were not for the sake of appearance, you could give your house a coat of pure Linseed Oil, and it would be protected?

The solid part of Paint (Strictly Pure White Lead, Strictly Pure Zinc, and, in some Paints, baser metals) acts as beautifier only.

Strictly Pure Zinc absorbs more Oil than any other pigment and that is the reason for its use in Horse Shoe Paint. WHITE LEAD is used for its covering qualities, and ZINC for its *Oil-carrying* capacity.

And Oil-carrying capacity is what your Paint *must have* if your property is to be protected.

Horse Shoe Paint, while it covers and beautifies the surface thoroughly, is made of pigments that carry so much oil, that the *first* coat satisfies the oil-hunger of the wood leaving the second coat to gloss, harden, protect, and beautify.

That's why Mound City Horse Shoe Brand House Paint HOLDS its gloss.

Mound City Paint & Color Co.

GOOD MAKERS OF GOOD PAINTS

St. Louis, U. S. A.